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The Mediating Role of Childhood Abuse and Emotion Regulation Between Parental Bonding and Suicidal Behaviour

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Doctorate in Clinical Psychology
The University of Edinburgh
2011



Declaration of Work

I confirm that all this work is my own except where indicated and that I have read and understood the plagiarism rules and regulations, have composed and undertaken the work myself and have referenced/ listed all sources as appropriate. This work has not been submitted for any other degree or professional qualification.

Signed

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Abstract

Introduction: Experiences of negative parenting and childhood abuse can have adverse consequences for the child's development particularly in relation to the ability to regulate emotions effectively. There has been extensive research in this area and attachment theory is pivotal. Problems in regulating emotions can involve not being able to recognise, label or manage internal and external states of mind and behaviour. Therefore research has shown that problems in emotion regulation skills due to negative parental and/or abusive experiences can result in long-term psychosocial problems such as depression. Research has suggested that adults with adverse childhood experiences exhibit risky behaviours as a means of managing their emotions such as self-harming, dangerous sexual encounters and substance misuse. Although research has shown that there is an association between these factors no real understanding of the pathways and the potential mediating roles these factors play has been investigated with people presenting with suicidal behaviour, which could be argued as the ultimate form of managing emotions and therefore the internal and external self. Therefore this study aims to answer the following question: Does childhood abuse and dysfunctional emotion regulation mediate the relationship between parental bonding and suicidal behaviour.

Method: This study involved sixty participants from a suicidal behaviour sample presenting at an Accident and Emergency department aged between 18 - 65. Measures assessing childhood abuse, emotion regulation, parental bonding, suicidal intent, risk of repeating suicidal behaviour, depression and anxiety were completed.

Results: Childhood emotional abuse was found to significantly mediate the relationship between low parental care and risk of repeating suicidal behaviour. A lack of external functional emotion regulation strategies was also found to mediate the relationship between parental care and risk of repeating suicidal behaviour. Finally, a lack of internal functional emotion regulation strategies was found to mediate the relationship between childhood physical abuse and risk of repeating suicidal behaviour.

Conclusion: Preliminary findings of this study suggest that childhood emotional abuse and dysfunctional emotion regulation play a crucial role in further understanding those who engage in and are at risk of repeating suicidal behaviour. Therefore, emotions and emotion regulation within a developmental framework are important when considering long-term adult psychosocial functioning.

CHAPTER 1: SYSTEMATIC REVIEW

Systematic Review

Childhood Abuse and Suicidal Behaviour in Adulthood: A Systematic Review of Epidemiological Research

1.1 Abstract

Objectives: To develop a systematic review and investigate the association between childhood sexual, physical, emotional abuse and neglect to suicidal behaviour in adulthood.

Method: Internet and manual reference list searches were conducted in order to retrieve and evaluate studies investigating suicidal behaviour and childhood abuse with people presenting to a general or psychiatric hospital.

Results: Ten studies were reviewed. Adults who had engaged in suicidal behaviour had significantly more experiences of childhood abuse and were more likely to engage in multiple suicide attempts.

Conclusion: There is an apparent association between experiences of childhood abuse and suicidal behaviour in adulthood. Research shows that other variables such as parental bonding and emotion regulation strategies may play a mediating role between this association and should be further investigated.

Key words: Suicidal behaviour; Sexual, Physical, Emotional abuse; Neglect

1.2 Introduction

The National Society for The Prevention of Cruelty to Children (NSPCC) reports that the exact incidence of child abuse in the UK is unknown because the UK does not publish these statistics. However, examination of the number of children on child protection registers provides evidence of the number of children who have been identified to be at risk of experiencing abuse. Around 46,700 children in the UK were recognised to be at risk of abuse in 2010 (www.nspcc.org.uk). The Scottish Government (2010) reported 2,518 children aged 0-16+ to be at risk of abuse where 1,275 boys and 1,199 girls were identified. From this 485 children were known to be at risk from physical abuse, 202 children from sexual abuse, 727 children from emotional abuse and 1,098 children from neglect in 2010 (www.scotland.gov.uk).

A definitive definition of different types of child abuse and neglect is still to be established. There is agreement however within psychological and medical research and government bodies that childhood abuse can be physical, sexual and/or emotional in nature. Furthermore childhood abuse is recognised to range from a single episode to a long-term pattern and that amongst the various forms of abuses there is considerable overlap.

The current systematic review looked at sexual, physical, emotional abuse and neglect. To provide consistency between the studies being examined the definitions of these forms of abuse were taken from the Scottish Government and used to form part of the inclusion criteria. These definitions are outlined below:

Physical Abuse:

‘Physical abuse may involve hitting, shaking, throwing, poisoning, burning or scalding, drowning, suffocating, or otherwise causing physical harm to a child. Physical harm may also be caused when a parent or carer feigns the symptoms of, or deliberately causes, ill health to a child whom they are looking after. This situation may be described as fabricated or induced illness by the carer.’

(<http://www.scotland.gov.uk/Publications/2010/05/27095252/11>)

Emotional Abuse:

‘Emotional abuse is where persistent emotional ill treatment of a child causes severe and persistent adverse effects on the child's emotional development. It may involve conveying to a child that they are worthless or unloved, inadequate or valued only in so far as they meet the needs of another person. It may feature age or developmentally inappropriate expectations being imposed on children. It may involve causing children frequently to feel frightened or in danger, or the exploitation or corruption of children. Some level of emotional abuse is present in all types of ill treatment of a child, though it may occur independently of the other forms of abuse.’

(<http://www.scotland.gov.uk/Publications/2010/05/27095252/11>)

Sexual Abuse:

‘Sexual abuse involves forcing or enticing a child to take part in sexual activities, whether or not the child is aware of what is happening. The activities may involve physical contact, including penetrative or non-penetrative acts. They may include non-contact activities, such as involving children in looking at, or in the production of, pornographic material or in watching sexual activities, using sexual language towards a child or encouraging children to behave in sexually inappropriate ways.’

(<http://www.scotland.gov.uk/Publications/2010/05/27095252/11>)

Emotional Neglect:

‘Neglect is the persistent failure to meet a child's basic physical and/or psychological needs, likely to result in the serious impairment of the child's health or development. It may involve a parent or carer failing to provide adequate food, shelter and clothing, to protect a child from physical harm or danger, or to ensure access to appropriate medical care or treatment. It may also include neglect of, or unresponsiveness to, a child's basic emotional needs.’

(<http://www.scotland.gov.uk/Publications/2010/05/27095252/11>)

In addition to the incidence of childhood abuse there are approximately a million deaths per year world wide as a result of suicide (Hawton & Heeringen, 2009). The Office for National Statistics (2011) reported that in 2009 5,675 people committed suicide in the UK. The General Register Office for Scotland (2010) reported that in 2009 746 people aged 14-85+ committed suicide. Out of these, 682 people were aged between 16-65. Approximately 241 people in 2009 poisoned themselves, 330 people hung, strangled or suffocated themselves, 45 people drowned themselves, 10 people used firearms or explosives, 64 people jumped and 56 people's deaths were undetermined (www.gro-scotland.gov.uk). The highest ranking health board areas for suicide attempts in 2009 were Greater Glasgow and Clyde where 204 people committed suicide, 106 people in Lothian, 80 people in Lanarkshire, 50 people in Fife and 48 in Tayside (www.gro-scotland.gov.uk).

The prevalence between experiencing childhood abuse and suicidal behaviour in adulthood is considerable and there has been extensive research investigating this relationship in a range of populations. A recent study by the NSPCC (2011) looking at child cruelty in the UK found that young adults who were severely abused and neglected as children were nine times more likely to attempt suicide compared to young adults who had not had these experiences. The NSPCC (2011) study also found that the more different forms of abuse experienced the higher the degree of trauma and development of behavioural problems. A study by Butchart and Harvey (2006) for the World Health Organisation (WHO) found that exposure to childhood maltreatment led to those individuals engaging in risk-

taking behaviour in adulthood such as alcohol/drug problems, depression, high risk sexual behaviours as well as being vulnerable to further bullying and abuse. These risky behaviours were found to result in a range of health problems including engaging in suicidal behaviour. Therefore childhood abuse carries extensive long-term physical and mental health problems such as poorer emotional wellbeing which impacts on the individual and society (Butchart & Harvey, 2006). A systematic review by Santa-Mina and Gallop (1998) investigated clinical and community populations and found strong evidence that childhood sexual and physical abuse was also related to suicidal behaviour. The Santa-Mina and Gallop (1998) systematic review was definitive at its time of publication. A general population longitudinal study carried out over 23 years by Fergusson *et al.* (2008) found that child sexual abuse had longer-term effects compared to child physical abuse and that child sexual abuse was a stronger contributing factor towards adults attempting suicide. Research into childhood emotional abuse has not been as extensive as the research into physical and sexual abuse. However, literature into emotional abuse indicates that it may play a stronger role in the development of long-term psychological problems and functioning such as suicidal behaviour than other types of abuse (Kaplan *et al.*, 1999). Another general population study by Mullen *et al.* (1996) found that adults with experiences of childhood emotional abuse were twelve times more likely to attempt suicide compared to adults with experiences of childhood physical abuse who were five times more likely to engage in suicidal behaviour. Andrews *et al.* (2004) carried out a meta-analysis for the WHO and found a strong relationship between child sexual abuse and suicidal behaviour in adulthood.

Although the relationship between childhood abuse and subsequent suicidal behaviour in adulthood has been extensively researched, this relationship however has not been established. Furthermore, the potential mediating roles between these two variables has not been extensively researched and requires further investigation. One of the main reasons for the lack of clarity between this relationship is due to large variation in definitions used for suicidal behaviour. For example, suicidal behaviour definitions have encompassed parasuicide, self-cutting, self-poisoning and self-mutilation which are not routine in nature. These are a small number of definitional examples which have been researched as suicidal behaviour since the 17th century (De Leo *et al*, 2006). Definitional inconsistency therefore creates difficulty when comparing the results of different studies and also when trying to ascertain inferences from the outcomes of the research literature (Evans *et al*, 2005). Therefore to establish consistencies between the studies being reviewed the definition of suicidal behaviour which differs from suicide and self-harming behaviour is outlined below. The definition of suicidal behaviour was used to develop inclusion criteria.

Suicide:

‘Suicide is an act with a fatal outcome which the deceased knowing or expecting a potentially fatal outcome has initiated and carried out with the purpose of bringing about wanted changes’ (De Leo *et al*, 2006, p.12).

Therefore suicide involves deliberately engaging in behaviour that leads to death where the individual intended to kill themselves when carrying out the action. The

term intended or intent means the degree to which someone wishes to die by causing or not causing death (De Leo *et al*, 2006).

Suicidal behaviour

‘A deliberate act of actual or potential harm to the self, undertaken with a degree of suicidal intent with non-fatal outcome regardless of purpose or method’ (Dale *et al*, 2010, p.311).

Deliberate self-harm

‘The deliberate, direct destruction or alteration of body tissue without conscious suicidal intent but resulting in injury severe enough for tissue damage to occur’ (Gratz, 2003, p.192).

The definitions of suicide and deliberate self-harm are presented to provide a fuller picture of the dimensions involved within the suicide construct. These two dimensions are not part of this study and will therefore not be further discussed.

In addition to definitional issues the majority of research has examined the relationship between childhood trauma and suicidal behaviour in specific psychiatric populations such as depression (Zlotnick *et al*, 2000), post traumatic stress disorder (PTSD) (Thompson *et al*, 2000), borderline personality disorder (Soloff *et al*, 2008), aggression (Bacskai *et al*, 2009) and substance and alcohol abuse (Rossow & Lauritzen, 2001; Roy, 2003; Roy, 2004). Therefore Rogers (as cited in Evans *et al*, 2005) suggests drawing inferences and conclusions to other samples outside of these specific mental health groups is undetermined.

A large number of systematic reviews have also been carried out investigating clinical risk factors for suicidal behaviour which includes childhood trauma

mainly focusing on childhood sexual or physical abuse. For example, Hawton *et al.* (2005) investigated risk factors for suicidal behaviour with adults diagnosed with schizophrenia. Andrews *et al.* (2004) investigated the relationship between child sexual abuse and suicidal behaviour with adults with a range of mental health problems such as depression, PTSD, obsessive compulsive disorder and panic disorder. Franko and Keel (2006) examined studies looking at predictive factors such as childhood abuse for suicidal behaviour in adults with eating disorders and Beitchman *et al* (1992) reviewed studies also looking at the long-term effects of child sexual abuse such as suicidal behaviour. However, to date only a small number of studies have investigated the association between childhood abuse and suicidal behaviour within a sample of people who have been admitted to a general or psychiatric hospital following suicidal behaviour. Within this area the impact of childhood abuse on the frequency of suicidal behaviour (multiple versus single suicide attempts) has also been investigated to enhance the understanding of the relationship between childhood maltreatment and suicidal behaviour. For example, a study by Law *et al.* (1998) found that childhood abuse was a factor in females engaging in multiple suicidal behaviours which resulted in hospital admission.

This review therefore aims to address the gap in the literature by assimilating the epidemiological results within this topic area. This will be the first systematic review looking at the association between childhood sexual, physical, emotional abuses and neglect with adults presenting to a general or psychiatric hospital having engaged in suicidal behaviour. To summarise, this systematic review

examines the recent international research in one specific area: The association between childhood sexual, physical and emotional abuses and neglect with adults engaging in suicidal behaviour presenting at a general or psychiatric hospital.

1.3 Methods

1.3.1 Data Sources:

Relevant articles were examined using two search methods. This is illustrated in figure 1. The first involved an internet based search using the following four databases between January 1988 and April 2011. The literature search was carried out between these dates because the last systematic review in this area conducted by Santa-Mina and Gallop (1998) reviewed studies between 1988 and 1998. Therefore the above dates were chosen to make sure there was no gap in the literature search.

1. ASSIA
2. EMBASE
3. PSYCHINFO
4. PUBMED

Separate searches were carried out using the following terminology (* and \$ exemplify truncation). Search terminology was based on similar terms used by Evans *et al.* (2005). Suicid*/\$ OR parasuicid*/\$ OR overdos*/\$ OR self-harm*/\$ OR self-cut*/\$ OR self-mutilate*/\$ OR self-poison*/\$ OR self-injur*/\$ AND child*/\$ OR adolescen*/\$ OR youth*/\$ OR teen*/\$ AND abuse OR trauma OR maltreatment OR adversit*/\$ AND adult OR adulthood. Searches were carried out without the terms adult and adulthood for a more comprehensive search.

The second search methodology involved carrying out a manual search of the reference lists of the studies retained for more detailed evaluation. Abstracts and where appropriate full text articles were then retained by using the above databases. The articles examined in the Santa-Mina and Gallop (1998) systematic review were also screened dating from 1988-1998. This review assimilated the research findings on childhood sexual and physical abuse and suicidal behaviour in adulthood and was considered the definitive review of its time.

A total of 7236 articles were identified and screened. The internet search found 7199 studies: 493 from ASSIA, 2375 from EMBASE, 1702 from PSYCHINFO and 2629 from PUBMED. A further 8 studies were identified and screened from the reference list manual search and the 29 articles reviewed by Santa-Mina and Gallop (1998) were also re-evaluated. One hundred and fifty seven articles were retained for further assessment and 84 were excluded because they did not meet inclusion criteria. The remaining 10 studies which met all the inclusion criteria were retained for this systematic review.

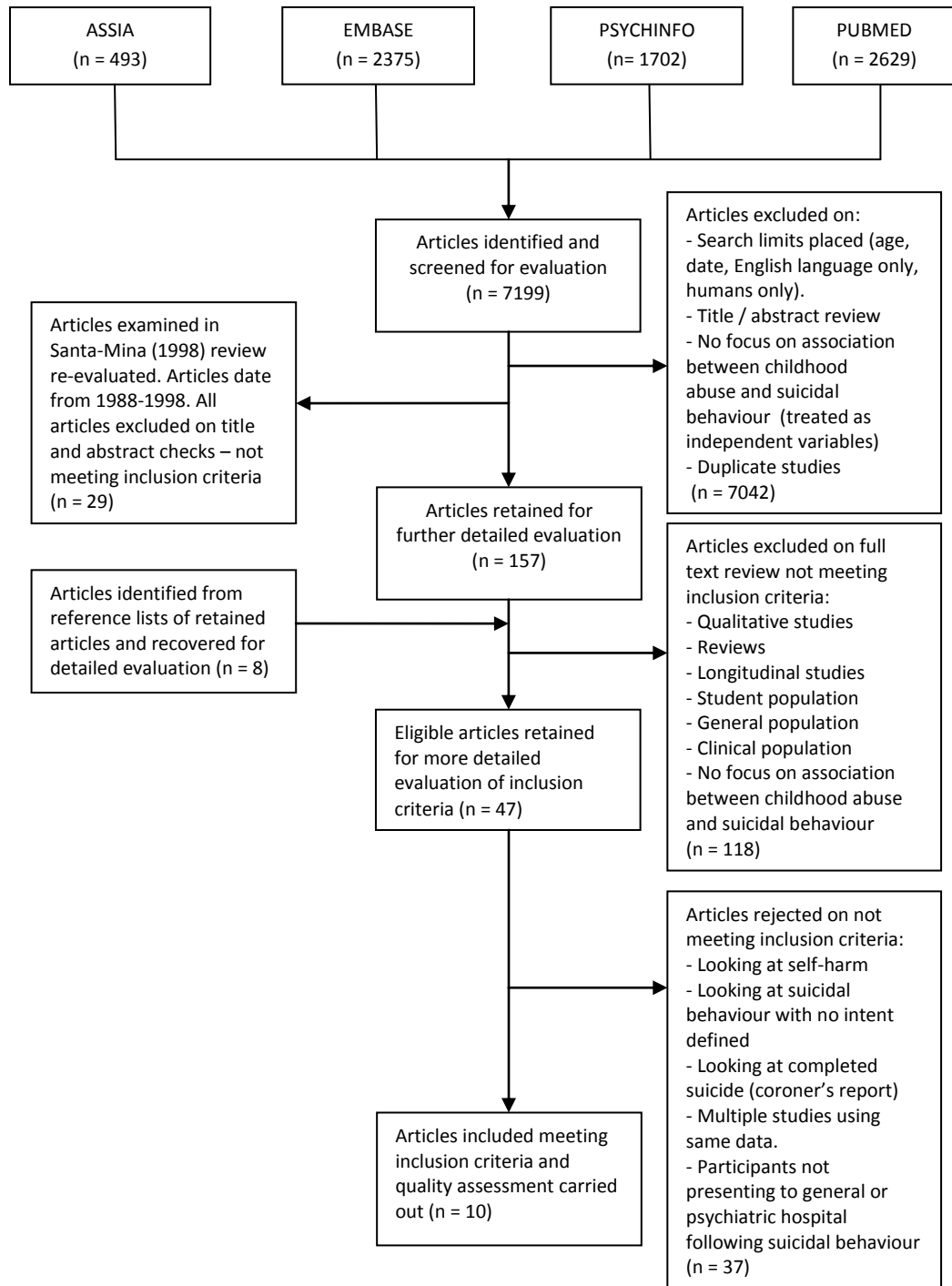


Figure 1. Summary of literature search and study selection process.

1.3.2 Inclusion Criteria

Articles were included in the systematic review based on the following criteria: A definition of suicidal behaviour was provided that clearly included the term ‘intent’ to explain the participants’ degree to wish to die. Any within group studies looking at the association between childhood abuse and frequency of suicidal behaviour. Abuse history was reported and was consistent with the terms outlined by the Scottish Government. Information on both suicide and abuse history had been obtained via a clinical interview or self-report measures. Age that childhood abuse occurred was reported at 18 years or younger. Participants’ minimum age was 16 years old. All articles were in the English language and all participants presented to a general or psychiatric hospital following suicidal behaviour.

1.3.3 Exclusion Criteria

Articles not meeting the above inclusion criteria were excluded. Figure 1 outlines the nature of the studies excluded. Because suicidal behaviour with intent (previously defined) was being reviewed, studies looking at suicidal thoughts, ideation and/or death wishes with no suicidal action were not considered relevant for this review.

1.3.4 Quality Assessment and Critical Analysis Procedure

Given the limited number of studies meeting inclusion criteria, quality assessment was not a prerequisite to studies being included in this systematic review. Quality

assessment was however carried out on all ten articles that met inclusion criteria. The Scottish Intercollegiate Guidelines Network (SIGN, www.sign.ac.uk) methodology checklist was used to assess and critically appraise the quality of the ten included studies. The inclusion of methodologically robust and less robust studies based on SIGN criteria highlights the methodological limitations that need to be addressed to improve future research in this area.

Because of the few studies that have been carried out in this specific area a mixture of between group case-control and within group comparison studies were included in this systematic review. The SIGN methodology checklist is specific to case-control research and is also applicable to the within group comparison studies included in this review. Both designs are common in epidemiological research and there is no specific standardised methodology checklist for comparison studies as designs of this nature overlap with case-control designs. See appendices 1 and 2 for an example of the SIGN quality assessment tool and corresponding notes (www.sign.ac.uk/guidelines/fulltext/50/checklist4.html); (<http://sign.ac.uk/guidelines/fulltext/50/notes4.html>). Both case-control and comparison designs investigate two groups one with the outcome variable and the other without. A definition of a case-control study which is also applicable to comparison studies is outlined below. The quality of the ten articles was also evaluated and agreed by a second independent reviewer.

‘The observational epidemiological study of persons with the disease (or another outcome variable) of interest and a suitable control group of persons without the disease (comparison group, reference group).’ (Porta, 2008, p.31).

1.4 Results

1.4.1 Descriptive Information

Ten articles meeting inclusion criteria were identified for the review. Table 1 provides an overview of the index population and studies. Table 2 provides a brief outline of limitations of included studies and quality assessment rating. The ten studies equate to 1381 participants, both males and females of varying nationality.

Table 1. Characteristics of included studies and index group.

Author/Date/ Country	Sample Size	Mean Age (Age Range)	Survey Methodology/ Measures/Design	Demographic Info (Gender/Ethnicity)	Suicidal Behaviour & Prevalence, n (%)	Type of abuse
Coll et al. (2001); UK	Total Cases (n = 36) Matched cases (n = 21) Non-matched (n = 15) Control (n = 21)	35 years (18-50 years)	Self-report questionnaires: - Demographics - Sexual abuse questionnaire (SAQ) - Physical abuse scale - Psychological abuse scale Between group design	100% female, 95.2% White	Deliberate self poisoning (overdose). Matched cases episodes: 1 = 11 (52.4) 2-4 = 8 (38.1) 5+ = 2 (9.5) Non-matched episodes: 1 = 8 (53.3) 2-4 = 6 (40.0) 5+ = 1 (6.7)	Sexual Physical Psychological
Forman et al. (2004); USA	Single suicide attempters: (n = 39) Multiple suicide attempters: (n = 114)	33.61 years (18-64 years)	Clinician administered questionnaires: - Suicide intent scale Self report measures: - Psychiatric history form including childhood maltreatment Within group design	57% female, 43% male, 63% African American, 28% white, 9% Latino, Asian American, Native American or unspecified	Single suicide attempters: 39 (25.5) Multiple suicide attempters: 114 (74.5)	Sexual Emotional

Author/Date/ Country	Sample Size	Mean Age (Age Range)	Survey Methodology/ Measures/Design	Demographic Info (Gender/Ethnicity)	Suicidal Behaviour & Prevalence, n (%)	Type of abuse
Kaslow et al. (2000); USA	Suicide attempters: (n = 126) Non-suicide attempters: (n = 112)	30.55 years (18-64) years	Clinical Interview Clinician administered assessments: - Adult literacy test Self report measures: - Child trauma questionnaire (CTQ) Between group design	100% African American women.	Previous episodes: 1 = (39), 2 = (24), 3 = (16), 4+ = (21) Method: Overdose (79), Cutting (10), Ingestion of other poisonous substances (6), Asphyxiation (2), Jumping (1), Hanging (1) and Gunshot (1)	Sexual Physical Emotional abuse Emotional neglect
Kaslow et al. (2002); USA	Suicide attempters: (n = 100) Non-suicide attempters: (n = 100)	31.1 years (18 – 59) years	Self Report Questionnaires: - Demographics - Survey of recent life events - Childhood Trauma Questionnaire Between group design	100% African American women.	Previous episodes: 1 = (34) 2 = (19) 3 = (16) 4+ = (31) Method: Overdose (76), Cutting (12), Ingestion of other poisonous substances (4), Hanging (1) and Other (7).	Overall childhood trauma score including: Sexual, Physical Emotional abuses and Emotional neglect.

Author/Date/ Country	Sample Size	Mean Age (Age Range)	Survey Methodology/ Measures/Design	Demographic Info (Gender/Ethnicity)	Suicidal Behaviour & Prevalence, n (%)	Type of abuse
Orbach et al. (2006); Israel	Suicidal behaviour group: (n = 32) Psychiatric control group: (n = 34) General public control group: (n = 36)	17.50 years	Clinician administered assessments: - Severity of suicidal intent Self report questionnaires: - demographics - Suicidal tendencies scale - Maltreatment interview schedule Between group design	Suicidal behaviour group: Males: n = 19 Females: n = 13 Psychiatric control group: Males: n = 21 Females: n = 13 General public control group: Males: n = 15 Females: n = 21	Method: Self-poisoning (10), Stabbing and cutting (10) Violent attacks such as hanging, electrifying and jumping (12).	Physical Psychological
Osvath et al. (2003); Hungary	Suicide attempters: (n = 101)	Males: 33.4 years (17-75) years. Females: 36 years (17-73) years.	Clinician administered assessments: - medical & socio- demographic information Self report questionnaires - Stressful and traumatic events Within group design	Females: n = 63 (62%) Males: n = 38 (38%)	Previous episodes and method not reported.	Mental Physical Sexual

Author/Date/ Country	Sample Size	Mean Age (Age Range)	Survey Methodology/ Measures/Design	Demographic Info (Gender/Ethnicity)	Suicidal Behaviour & Prevalence, n (%)	Type of abuse
Sarchiapone et al. (2009); Italy	Italian Suicide attempters: (n = 103) Italian Psychiatric comparison group: (n = 88)	Italian suicide attempter group: 38.6 years (16 – 76) years Italian psychiatric comparison group: 41.5 years (18 – 70) years	Clinical Interview Self report questionnaires: - Childhood Trauma Questionnaire Within group design	Suicide attempters: Males: n = 27 (26.2%) Females: n = 76 (73.8%) Psychiatric Comparison: Males: n = 37 (42.1%) Females: n = 51 (57.9%)	Previous episodes and method not reported	Sexual Physical Emotional abuse Emotional neglect
Sfoggia et al. (2008); Brazil	Suicide behaviour group: (n = 62) Non-suicidal behaviour group: (n = 58)	Suicide behaviour group: 39.97 years. Non-suicidal behaviour group: 40.48 years Overall age range for both groups: (18 – 74) years	Clinical Interview Self report questionnaires: - Childhood Trauma Questionnaire Between group design	Suicide behaviour group: Females: n = 41 Males: n = 21 Non-suicidal behaviour group: Females: n = 31 Males: n = 27	Previous episodes and method not reported	Sexual Physical Emotional abuse Emotional neglect

Author/Date/ Country	Sample Size	Mean Age (Age Range)	Survey Methodology/ Measures/Design	Demographic Info (Gender/Ethnicity)	Suicidal Behaviour & Prevalence, n (%)	Type of abuse
Spokas et al. (2009); USA	Suicide attempters: (n = 166)	34.4 years (18 – 66) years	Clinician administered assessments: - Scale for suicide ideation - Number and dates of suicide attempts Self report measure: - Child sexual abuse history Within group design	Females: 57.8% Males: 42.2% 62.2% African American, 28.9% white and 8.9% identified as another race.	Multiple attempts with women/men with CSA history: n = 30 (75) / n = 19 (100) Multiple attempts with women/men with no CSA history: n = 38 (70.4) / n = 35 (66)	Sexual
Ystgaard et al. (2004); Norway	Suicide attempters: (n = 74)	36 years (16 – 82) years	Clinical Interview Clinician administered assessments: - Childhood experience of care and abuse Within group design	Females: n = 48 (65%) Males: n = 26 (35%)	Previous episodes: More than once: (58)	Sexual Physical Emotional abuse Neglect

Table 2. Outline of methodological limitations and SIGN quality assessment rating of included studies

Author	Brief outline of methodological limitations	SIGN quality assessment rating
Coll <i>et al.</i> (2001)	Small case and control sample. Focus on Caucasian female sample therefore restricted generalisability of results. Possible recall bias.	++
Forman <i>et al.</i> (2004)	Within group design therefore no control group limiting generalisability to suicidal behaviour group. Small and unequal sample limiting statistical power. Sampling bias not ruled out. Showed limited understanding of childhood maltreatment experiences. Adult revictimisation not controlled for. Possible recall bias.	+
Kaslow <i>et al.</i> (2000)	Risk of non-response and recall bias. Focus on African American female sample therefore limiting generalisability of findings. Possible cultural factors impacting on test validity.	++
Kaslow <i>et al.</i> (2002)	Likelihood of recall bias. Focus on African American female sample therefore restricting generalisability of findings. Cultural factors possibly reduced response validity. Overall childhood trauma measured therefore limiting inferences drawn from the findings.	++
Orbach <i>et al.</i> (2006)	Risk of sampling bias. Small sample numbers in all groups. Socio-political factors may have confounded findings. Adult revictimisation not controlled for. Limited external validity.	+
Osvath <i>et al.</i> (2004)	Small sample size limiting statistical power. Within group design therefore no control group. Findings limited to suicidal behaviour population.	++
Sarchiapone <i>et al.</i> (2009)	Possibility of sampling and response bias. Unequal participant numbers between both groups. Adult revictimisation not controlled for. Did not address emotional or psychological state of participants. Confounding variables limit reliability of findings.	+
Sfoggia <i>et al.</i> (2008)	Probable non-response bias. Did not control for adult revictimisation. Did not address or control for socio-demographic variables therefore reducing internal and external validity.	+
Spokas <i>et al.</i> (2009)	Risk of sampling bias. Limited test validity of childhood sexual abuse experiences. Did not measure other forms of childhood maltreatment therefore conclusions drawn from findings are limited. Socio-demographic variables and adult revictimisation not controlled for.	+
Ystgaard <i>et al.</i> (2004)	Adult revictimisation not controlled for. Within group comparison study therefore no control group limiting generalisability to suicidal behaviour population.	++

++ All or most of SIGN criteria fulfilled, + Some of SIGN criteria fulfilled, - Few or no SIGN criteria fulfilled.

1.4.2 Physical abuse

Physical abuse was examined in 7 studies. The results are outlined in table 3. Kaslow *et al.* (2000) univariate analysis showed that adults engaging in suicidal behaviour scored significantly higher for physical abuse than the non-suicidal behaviour group, $F(1, 231) = 8.58$, $P < 0.01$ (Bonferroni adjusted significance level). Orbach *et al.* (2006) also carried out univariate analysis and reported significant differences in physical abuse scores between the suicidal and non-suicidal psychiatric and community comparison groups, $F(2, 82) = 6.65$, $P < 0.01$. The post-hoc scheffe test at $p < 0.05$ found that the suicidal behaviour group scored significantly higher for childhood physical abuse than the other two comparison groups. Sarchiapone *et al.* (2009) used chi square analysis to compare their suicidal behaviour group to the non-suicidal psychiatric control group. This study found that suicide attempters scored significantly higher for childhood physical abuse compared to psychiatric controls $P = 0.006$. Sfoggia *et al.* (2008) used t-tests to assess for differences between the suicidal and non-suicidal psychiatric group. The study revealed that suicide attempters showed a significantly higher physical abuse score compared to the non-suicidal group $t(118) = 1.986$, $P = 0.04$. The Ystgaard *et al.* (2004) study found that people who engaged in multiple suicide attempts had experienced more childhood physical abuse and were four times more likely to repeat suicidal behaviour compared to those who engaged in suicidal behaviour for the first time.

The study by Coll *et al.* (2001) found that women who had engaged in suicidal behaviour and subsequently admitted to hospital were no more likely to have been

exposed to childhood physical abuse compared to matched controls ($p = 0.08$). Osvath *et al.* (2004) showed that there was no difference in reports of childhood physical abuse between males and females admitted to hospital following a suicide attempt. Overall, the majority of studies found that adults engaging in and repeating suicidal behaviour were significantly more likely to have experienced childhood physical abuse.

Table 3. Results of associations between childhood physical abuse and suicidal behaviour.

Reference	Abuse Terminology	Results of associations reported as: N, %, Mean, SD, OR, CI
Coll <i>et al.</i> (2001)	Childhood physical abuse: Slapping, beating, punching and kicking	Suicidal behaviour cases: Mean = 72, SD = 67. Non-suicidal behaviour cases: Mean = 15 SD = 28 OR (95%CI) = 1.05 (0.99-1.12)
Kaslow <i>et al.</i> (2000)	Childhood physical abuse: Physical violence, hitting resulting in bruises	Suicidal behaviour cases: Mean = 10.51 SD = 5.50 95%CI = 9.52 – 11.35 Non-suicidal behaviour cases: Mean = 8.31 SD = 4.14 95%CI = 7.45 – 9.35
Orbach <i>et al.</i> (2006)	Childhood physical violence: Slapping and beating	Suicidal behaviour group: Mean = 4.35 SD = 2.92 Non-suicidal behaviour cases: Psychiatric group: Mean = 2.59 SD = 1.81 General community group: Mean = 2.40 SD = 0.81
Osvath <i>et al.</i> (2004)	Childhood physical abuse. No further definition provided	Within suicidal behaviour group: Total: 43.6% Males : 39.5% Females: 46%
Sarchiapone <i>et al.</i> (2009)	Childhood physical abuse: Physical violence, hitting resulting in bruises	Suicidal behaviour group: Mean = 8.8 SD = 3.9 Non-suicidal behaviour group: Mean = 7.2 SD = 3.9
Sfoggia <i>et al.</i> (2008)	Childhood physical abuse: Physical aggression resulting in bruises	Suicidal behaviour group: Mean = 10.12 SD = 4.8 Non-suicidal behaviour group: Mean = 8.46 SD = 4.2
Ystgaard <i>et al.</i> (2004)	Childhood physical abuse: Physical aggression with risk of or resulting in bruises	Within suicidal behaviour group: Multiple attempters = 26% Single attempters = 7% OR (95%CI) = 4.98 (1.02 – 24.39)

1.4.3 Sexual abuse

Sexual abuse was examined in 8 studies. The results are outlined in table 4. The Ystgaard *et al.* (2004) study found that adults who engaged in multiple suicide attempts had experienced more child sexual abuse and were 3 times more likely to repeat suicidal behaviour compared to those who engaged in suicidal behaviour for the first time. Coll *et al.* (2001) carried out chi square analysis to compare cases with matched controls. The study showed that women engaging in suicidal behaviour were 12 to 15 times more likely than matched controls to have experienced contact sexual abuse $\chi^2 = 12.25$, $p < 0.001$, non-contact sexual abuse $\chi^2 = 9.308$, $p < 0.01$ and both forms of abuse $\chi^2 = 10.286$, $p < 0.01$. These women were 4 – 4.5 times more likely (OR = 4.50) to have been exposed to intra-familial $p < 0.05$ or extra-familial (OR = 4.00) $p = 0.03$ sexual abuse. They were also 6 times more likely to have had their first sexually abusive experience at 13 years or younger $p = 0.019$. Sarchiapone *et al.* (2009) carried out chi square analysis to compare groups. The suicidal behaviour group scored significantly higher for child sexual abuse than the non-suicidal psychiatric control group, $p = 0.001$. Sfoggia *et al.* (2008) found that the suicidal behaviour group reported significantly higher scores for child sexual abuse than the non-suicidal psychiatric group. The Spokas *et al.* (2009) study reported that more females disclosed experiences of child sexual abuse than males; however more males with a child sexual abuse history engaged in multiple suicide attempts compared to men without a sexually abusive history. Osvath *et al.* (2004) found that within the suicidal behaviour group, females reported significantly more experiences of child sexual abuse than males, $p < 0.01$.

The Forman *et al.* (2004) study investigated the effects of child sexual abuse on the frequency of suicidal behaviour. The study found that adults engaging in multiple suicide attempts also had a greater reported history of child sexual abuse compared to single suicide attempters. However, no significant difference was found between these two groups. A Kaslow *et al.* (2000) univariate analysis revealed that the suicidal behaviour group reported significantly higher scores for child sexual abuse than the non-suicidal behaviour group, $F(1,231) = 5.55$, $p < 0.05$ (not corrected for significance level). However, when a Bonferroni test was applied to this data child sexual abuse did not maintain significance at the 0.01 level.

Table 4. Results of associations between childhood sexual abuse and suicidal behaviour.

Reference	Abuse Terminology	Results of associations reported as: N, %, Mean, SD, OR, CI
Coll <i>et al.</i> (2001)	Childhood sexual abuse: Contact and Non-contact of a sexual nature. E.g. speech, gesture and visual.	Suicidal behaviour cases: N = 14 Non-suicidal behaviour cases: N = 4 OR (95%CI) = 6.00 (1.34-26.80)
Forman <i>et al.</i> (2004)	Childhood sexual abuse. No further definition.	Within suicidal behaviour cases: Multiple attempters = 36.2% Single attempters = 22.2% OR = 1.99
Kaslow <i>et al.</i> (2000)	Childhood sexual abuse. Contact of a sexual nature.	Suicidal behaviour group: Mean = 9.95 SD = 6.34 CI = 8.64 – 10.85 Non-suicidal behaviour group: Mean = 7.55 SD = 5.38 CI = 6.63 – 8.92
Osvath <i>et al.</i> (2004)	Childhood sexual abuse. No further definition provided.	Within suicidal behaviour group: Total: 9.9% Males : 0% Females: 15.9%
Sarchiapone <i>et al.</i> (2009)	Childhood sexual abuse: Contact of a sexual nature.	Suicidal behaviour group: Mean = 8.9 SD = 4.1 Non-suicidal behaviour group: Mean = 7.1 SD = 2.4
Sfoggia <i>et al.</i> (2008)	Childhood sexual abuse: Sexual contact / conduct.	Suicidal behaviour group: Mean = 7.46 SD = 4.2 Non-suicidal behaviour group: Mean = 6.06 SD = 2.6
Spokas <i>et al.</i> (2009)	Childhood sexual abuse: Did you ever experience sexual abuse as a child?	Within suicidal behaviour group: Females = 67.8% Males = 32.2%
Ystgaard <i>et al.</i> (2004)	Childhood sexual abuse: Contact abuse only inside and outside the family.	Within suicidal behaviour group: Multiple attempters = 47% Single attempters = 19% OR (95%CI) = 3.62 (1.24 – 1.60)

1.4.4 Emotional abuse

Eight studies examined emotional abuse. The results are outlined in table 5. A Kaslow *et al.* (2000) univariate analysis showed that the suicidal behaviour group reported significantly higher scores for emotional abuse than the non-suicidal behaviour group, $F(1, 231) = 23.26, p < 0.01$. Sfoggia *et al.* (2008) reported that the suicidal behaviour group also scored significantly higher for emotional abuse than the non-suicidal group $t(118) = 2.65, p = 0.009$. Sarchiapone *et al.* (2009) also found the same significant result between a suicidal and non-suicidal group. An Osvath *et al.* (2004) chi square analysis found that females within the suicidal behaviour group reported significantly more experiences of mental abuse, $p < 0.05$. Coll *et al.* (2001) also found that the female suicidal behaviour group were more likely to have experienced psychological abuse, $p = 0.04$, compared to the non-suicidal behaviour group. An Orbach *et al.* (2006) univariate analysis showed significant differences in psychological abuse scores between the suicidal and non-suicidal groups, $F(2, 82) = 13.94, p < 0.001$. The post-hoc Scheffe test at 0.05 found that the suicidal behaviour group scored higher for childhood psychological abuse than the other non-suicidal psychiatric and community groups. Forman *et al.* (2004) revealed that multiple suicide attempters had experienced significantly more emotional abuse than single suicide attempters, $\chi^2 = 9.55, p = 0.001$. Repeaters were 3 times more likely than non-repeaters to report childhood emotional abuse. Ystgaard *et al.* (2004) however, did not find a significant association between antipathy and multiple suicidal behaviour.

Table 5. Results of associations between emotional abuse and suicidal behaviour.

Reference	Abuse Terminology	Results of associations reported as: N, %, Mean, SD, OR, CI
Coll <i>et al.</i> (2001)	Childhood verbal abuse: Shouted at, made to feel guilty, criticised, humiliated and made to feel like a bad person.	Suicidal behaviour cases: Mean = 214 SD = 105 Non-suicidal behaviour cases: Mean = 34 SD = 61 OR (95%CI) = 1.02 (1.00-1.05)
Forman <i>et al.</i> (2004)	Childhood emotional abuse. No further definition.	Within suicidal behaviour group: Multiple attempters = 65.7% Single attempters = 36.8% OR = 3.29
Kaslow <i>et al.</i> (2000)	Childhood emotional abuse: Verbal aggression resulting in feeling hurt, insulted, threatened and humiliated	Suicidal behaviour group: Mean = 11.90 SD = 6.20 CI = 10.76 – 12.77 Non-suicidal behaviour group: Mean = 7.95 SD = 4.25 CI = 7.05-9.13
Orbach <i>et al.</i> (2006)	Childhood emotional abuse: Psychological, induced guilt by parents	Suicidal behaviour group: Mean = 3.52 SD = 1.87 Non-suicidal behaviour cases: Psychiatric group: Mean = 2.05 SD = 1.74 General community group: Mean = 1.40 SD = 0.92
Osvath <i>et al.</i> (2004)	Childhood mental abuse. No further definition.	Within suicidal behaviour group: Total: 56.4% Males : 42.1% Females: 65%
Sarchiapone <i>et al.</i> (2009)	Childhood emotional abuse: Verbal aggression resulting in feeling guilty, hurt, insulted, threatened and humiliated.	Suicidal behaviour group: Mean = 11.5 SD = 4.4 Non-suicidal behaviour group: Mean = 8.9 SD = 4.7
Sfoggia <i>et al.</i> (2008)	Childhood emotional abuse: Verbal aggression resulting in feeling threatened	Suicidal behaviour group: Mean = 13.4 SD = 5.2 Non-suicidal behaviour group: Mean = 10.79 SD = 5.6

Reference	Abuse Terminology	Results of associations reported as: N, %, Mean, SD, OR, CI
Ystgaard <i>et al.</i> (2004)	Antipathy: Dislike, criticism and verbal hostility	Within suicidal behaviour group: Multiple attempters = 35% Single attempters = 32% OR (95%CI) = 1.13 (0.42 – 3.00)

1.4.5 Emotional neglect

Four studies examined emotional neglect. The results are outlined in table 6. A Kaslow *et al.* (2000) univariate analysis showed that the suicidal behaviour group reported significantly higher scores for emotional neglect compared to the non-suicidal behaviour group, $F(1, 231) = 14.32, p < 0.01$. Sfoggia *et al.* (2008) also showed that the suicidal behaviour group had significantly higher childhood emotional neglect scores compared to the non-suicidal group, $t(118) = 2.19, p = 0.03$. However, a Sarchiapone *et al.* (2009) chi square analysis found that the suicidal behaviour group scores were not significantly higher compared to the non-suicidal psychiatric group. Ystgaard *et al.* (2004) also found a non-significant association between neglect and multiple suicidal behaviour.

Table 6. Results of associations between childhood emotional neglect and suicidal behaviour.

Reference	Abuse Terminology	Results of associations reported as: N, %, Mean, SD, OR, CI
Kaslow <i>et al.</i> (2000)	Childhood emotional neglect: Not feeling important or special; not feeling loved or cared for.	Suicidal behaviour group: Mean = 12.21 SD = 5.85 CI = 10.90 – 12.86 Non-suicidal behaviour group: Mean = 8.71 SD = 4.14 CI = 8.04 – 10.08
Sarchiapone <i>et al.</i> (2009)	Childhood emotional neglect: Not feeling important or special, not feeling loved or cared for and impacting on welfare of the child.	Suicidal behaviour group: Mean = 28.6 SD = 7.8 Non-suicidal behaviour group: Mean = 28.7 SD = 10.1
Sfoggia <i>et al.</i> (2008)	Childhood emotional neglect: Not being provided with love, care, support or physical needs.	Suicidal behaviour group: Mean = 14.24 SD = 5.7 Non-suicidal behaviour group: Mean = 12.05 SD = 5.1
Ystgaard <i>et al.</i> (2004)	Material and emotional neglect affecting child's welfare.	Within suicidal behaviour group: Multiple attempters = 28% Single attempters = 26% OR (95%CI) = 1.11 (0.39 – 3.16)

1.4.6 Overall trauma

Kaslow *et al* (2002) amalgamated the physical, sexual and emotional abuse and emotional neglect scores to produce an overall trauma score. Univariate analysis showed that the suicidal behaviour group reported higher levels of childhood trauma compared to the non-suicidal behaviour group, $F(1, 99) = 38.48, p < 0.01$. The suicidal behaviour group mean score = 67.24 and the non-suicidal behaviour group mean score = 51.72.

1.5 Critical analysis of individual papers

The findings of the individual studies reviewed are however limited because of methodological weaknesses. Based on the SIGN quality assessment checklist (www.sign.ac.uk/guidelines/fulltext/50/checklist4.html) the methodological limitations of each individual study are considered below under the specific author's name.

Before detailing methodological limitations of each study it is important to note that all reviewed and critically assessed studies covered well and addressed clearly focused objectives. Where applicable (i.e. between group designs) the cases and controls for each study were taken from comparable populations and the same exclusion criteria were used for both groups. Out of the 10 studies only four reported participation rates. Although participation rates are considered a key aspect of good epidemiological research to measure nonresponse bias, Galea and Tracy (2007) however argue that participation rate alone does not specify the degree of bias in the study. Rather, Galea and Tracy (2007) state that the best measure of nonresponse bias is the difference between participants and non-participants in the study. All the studies where applicable distinguish cases from controls thereby clarifying controls are not cases. Lastly, the majority of studies showed good test validity by using standardised, valid and reliable measures. Identified weaknesses with the test validity have been further discussed in relation to the specific study.

Coll *et al.* (2001)

Methodologically this was a strong, well designed and reported study. The study reported a participation rate of 58% for both cases and controls. Comparisons between participants and non-participants showed no significant differences on socio-demographic and clinical factors. Therefore the potential for bias and misrepresentation of the sample were reduced. The study also addressed and controlled for confounding variables taking into account within its design 'age, gender, ethnic origin, social class, marital status and geographical locality' (Coll *et al.*, 2001, p.1293). Both cases and controls were matched on these variables. Adult revictimisation was also controlled for in the form of adult, partner and peer abuse. However, this study also had a number of methodological limitations. The small sample size of both groups ($n = 21$) and the focus on one ethnic group and gender restricted generalisability of the findings. Furthermore, the context in which the data was collected in i.e. individuals being admitted to accident and emergency following suicidal behaviour suggests that a level of emotional distress exists. Coll *et al.* (2001) also acknowledged this as a limitation of their study. This therefore could have indirectly prejudiced self reports thereby increasing recall or memory bias. Coll *et al.* (2001) however also aimed to reduce this confounding factor by the experimenter checking with the participant how they were feeling and if they were feeling distressed and also allowing time for the participant to ask questions and discuss any upset following data collection.

Forman *et al.* (2004)

This study had a good design however presented with some methodological flaws. The unequal sample size between the two groups may have increased the risk of confounding factors and therefore affected internal validity of the measured data. Furthermore the small sample size in the single suicide attempter group would have reduced statistical power and limited conclusions drawn from the data as there was a chance of inaccurate estimation of the results. This therefore impacted on the external validity and generalisability of the findings. Forman *et al.* (2004) reported a participation rate of 62%, however, comparison between participants and non-participants had not been addressed and therefore potential sampling bias could not be ruled out. Suicidal behaviour was assessed using a standardised, valid and reliable self report measure however the measure of childhood maltreatment did not provide further clarification and definition of childhood sexual and emotional abuse other than these terms. This therefore limited the study's understanding of these experiences and may have increased recall bias by potentially affecting the self reports of these childhood experiences. Forman *et al.* (2004) addressed in the design of the study germane variables such as unemployment, social class, family history of suicidal behaviour and family history of mental health problems. This therefore reduced the potential confounding effects of these factors. However, adult revictimisation was not controlled for. Overall, this was a within group comparison study which endeavoured to reduce the risk of bias and confounding factors. However the generalisability of these results was confined to the suicidal behaviour sample.

Kaslow *et al.* (2000)

This was a good quality study. Both groups were matched on gender, ethnicity age, marital status and geographical location (Kaslow *et al.*, 2000). There were large numbers of participants in both groups' therefore increasing statistical power and robustness. This study also addressed and controlled for family history, economic status and adult revictimisation in the form of adult partner physical and non physical abuse. This study therefore took into account a number of confounding variables within its design and analysis thereby minimising the risk of bias within the findings. Despite the methodological rigor of this study, a number of limitations need to be addressed. Comparison between participants and non-participants was not addressed, therefore non-respondent bias could not be ruled out. Kaslow *et al.* (2000) acknowledged that the Child Trauma Questionnaire used in this study was not specifically developed for the African American population. This may have biased self reports as cultural factors and possible stigma associated with the wording of the questions may have influenced over or under reporting of childhood maltreatment experiences. The context in which the data was collected i.e. emergency room following suicidal behaviour may have further biased self reports through increased levels of psychological distress. Kaslow *et al.* (2000) also recognised this as a limitation of their study. Finally, all the participants were African American women from a deprived geographical locality hence limiting generalisation of the findings.

Kaslow *et al.* (2002)

This was a strong study in its design and analysis. Although a participation rate was not addressed comparison between participants and non-participants was well covered. Kaslow *et al.* (2002) found no significant differences on age, education, marital status and employment. Therefore the risk of non-response bias was reduced. There were large and equal numbers in both groups increasing statistical power and internal validity. This study controlled for socio-economic status and adult revictimisation in the form of adult partner abuse. However, a few methodological limitations need to be raised. The data was collected over a three hour time frame for each participant and therefore fatigue may have confounded self reports. Also, participants were recruited from an emergency department following suicidal behaviour. Kaslow *et al.* (2002) acknowledge that participants may have been exhibiting increased distress levels which would further confound self reports and introduce recall bias. Furthermore, all the participants of this study were African American women; therefore the results of this study were representative of this fraction of society hence reducing external validity. Kaslow *et al.* (2002) recognised that this limitation decreased generalisation of their results. Cultural factors were not taken into account when administering the questions from the Childhood Trauma Questionnaire which may have further biased self reports and reduced response validity. Finally, this study investigated overall childhood maltreatment and therefore the study could not draw more in depth conclusions of the impact of different forms of childhood abuse on suicidal behaviour in adulthood.

Orbach *et al.* (2006)

Although this study was well designed with clear delineated case and control groups matched on education, socio-economic status and age it also presented with a number of methodological limitations. Comparison between participants and non-participants was not addressed hence increasing the likelihood of sampling bias. Orbach *et al.* (2006) acknowledged that each group had a small number of participants in relation to the multivariate statistical analysis performed. This therefore limited the statistical power of the test and weakened the conclusions drawn from the results. Other extraneous socio-political factors such as mandatory conscription and adult revictimisation may have acted as confounding variables and this was not measured or addressed within the design and analysis of this study. In addition, data was collected from participants who has engaged in suicidal behaviour and were subsequently admitted to an inpatient facility. Again this confounding variable was not addressed in the design of the study. Therefore the experience of being an inpatient adds an additional institutional dimension which may bias self reports. These methodological limitations reduced internal and external validity of the study, hence restricting generalisation of findings.

Osvath *et al.* (2004)

This was a good quality study. Osvath *et al.* (2004) reported a participation rate of 31% and comparison between participants and non-participants showed no significant differences in age, gender, marital status, employment and education. Therefore the risk of sampling bias and distortion of results were reduced in addition to reducing confounding. This study also took into account

environmental factors related to family history outside of childhood maltreatment such as divorce of parents. The study also addressed adult revictimisation within and out with participants current relationship. Therefore this study decreased possible confounding variables by taking them into account within the study's design and analysis. Therefore the internal validity of this study exhibits robustness. However, despite these methodological strengths the relatively small numbers and unequal sample size would have limited statistical power and the inferences drawn from the results. Furthermore, this was a within group comparison study with no control group and therefore the findings of this study are limited to the suicidal behaviour population hence reducing external validity and generalisation.

Sarchiapone *et al.* (2009)

Methodologically this study presented with some weaknesses. Comparison between participants and non-participants had not been addressed therefore sampling bias could not be excluded. There were unequal numbers between the two groups with a relatively smaller sample size in the non-suicidal comparison group. This may have potentially reduced statistical power when analysing data between the two groups. This may have therefore weakened the robustness of the findings and so limiting external validity and generalisability. Furthermore, this study did not address if the participants were stable or in a distressed state when the data was collected therefore increasing the risk of response bias and hence affecting internal validity. In addition to this, adult revictimisation was not

controlled for and therefore findings related to childhood abuse experiences may have been further confounded.

Sfoggia et al. (2008)

This was a reasonably well designed study. However, the study was downgraded by the reviewer due to a number of methodological weaknesses. For example, comparison between participants and non-participants had not been addressed and therefore sampling bias could not be discounted. Furthermore, the study did not control for adult revictimisation such as interpersonal violence which could have potentially confounded results. This study matched groups on age and education, however the study did not address socio-economic factors and historical family background experiences outside of abusive experiences which may or may not impact on suicidal behaviour. Therefore these pertinent factors may have confounded the findings of this study since there was no address of these variables being controlled for. These methodological weaknesses reduce the internal and external validity of the data hence the strength and generalisation of these results are limited.

Spokas et al. (2009)

A number of methodological weaknesses reduced the internal and external validity of this study and therefore limited the inferences drawn from the findings. The study did not address comparison between participants and non-participants, therefore sampling bias could not be disregarded. The measure of suicidal behaviour showed good test validity; however, child sexual abuse was measured by asking one self-report question 'Did you experience sexual abuse as a child'

(Spokas *et al.*, 2009, p.468). No other definition or conceptual understanding of this experience was provided which may have limited the accuracy of participant responses such as under or over reporting experiences. Therefore these findings may not be a true representation of the sample hence limiting external validity. Spokas *et al.* (2009) acknowledged that measuring child sexual abuse could be a culturally sensitive and/or stigmatising experience which could lead to differences in self-reports between men and women. Furthermore, no other forms of childhood abuse were investigated and therefore the potential influences of other forms of maltreatment could be confounding the findings of this study. In addition to this other relevant factors such as socio-economic status, family history and adult revictimisation were not controlled for leading to further confounding effects. This study was ethnically diverse and Spokas *et al.* (2009) recognised that this diversity could potentially allow the results to be applied more widely. However, this was a within group comparison study and therefore conclusions drawn from the findings were limited to the suicidal behaviour population.

Ystgaard *et al.* (2004)

This was a methodologically strong study. This study reported a participation rate of 61% and comparison between participants and non-participants found no significant differences regarding gender and marital status and therefore reducing sampling bias. The study used an in depth clinician rated childhood experience interview schedule rather than a self report measure to reduce the confounding effects of response bias and emotional prejudice such as mood and mental state. However, given the context that the data was collected within i.e. accident and

emergency department following suicidal behaviour the confounding effects of these factors cannot be fully controlled for. Adult revictimisation was not controlled for therefore potentially confounding self reports and minimising inferences drawn from the results. Finally, as this was a within group comparison study the findings from this study are limited to the suicidal behaviour population and cannot be further generalised.

1.6 Discussion

1.6.1 Overall limitations / methodological issues of reviewed studies

The limitations of the reviewed articles as a whole suggest that the findings of this systematic review should be considered with caution. Principally, the relatively small participant numbers from the majority of studies reduced statistical power hence lowering the discovery of possible associations and diminishing the conclusions that could be drawn from the findings. Furthermore, the unequal participant group numbers increased the risk of confounding factors and so weakening internal validity. Five of the studies did not report participation rates and/or comparisons between participants and non-participants, therefore being susceptible to sampling bias and misrepresentation of the sample. In addition, some of the studies such as Orbach *et al.* (2006); Sarchiapone *et al.* (2009); Sfoggia *et al.* (2008) did not report adequate control for confounding variables encompassing social, political and familial factors. For example, confounding through inadequate matching of groups. Therefore, these studies were open to Type I error and drawing spurious conclusions from the findings.

Forman *et al.* (2004) and Spokas *et al.* (2009) did not show an understanding of childhood maltreatment experiences, particularly in the measurement of these experiences. For example, Forman *et al.* (2004) did not clarify or define childhood sexual and emotional abuse experiences and Spokas *et al.* (2009) did not define and provide a conceptual understanding of childhood sexual abuse experiences. Hence these studies were vulnerable to recall and response bias. Furthermore,

because childhood maltreatment experiences involve a broad range of behaviours such as contact or noncontact sexual abuse or internal (feeling bad) and external (being shouted at) emotional abuse, comparison of these studies to other research investigating these forms of maltreatment are limited due to their lack of definition and clarification. In addition, the language used to assess these childhood experiences may have biased participant responses. For example, the Spokas *et al.* (2009) study obtained a history of child sexual abuse by asking one self-report question and the language in this question may have been stigmatising and therefore affected disclosure rates. However, the majority of the studies in this review used a detailed interview schedule or validated self-report measures therefore also showing good test validity.

Three of the studies (Coll *et al.*, 2001; Kaslow *et al.*, 2000; Kaslow *et al.*, 2002) focused on one specific gender and ethnicity therefore restricting generalisability of the findings. Kaslow *et al.* (2000) and Kaslow *et al.* (2002) also did not address within its design cultural factors such as stigma associated with the test validity of the Childhood Trauma Questionnaire on specific ethnic groups which may have biased self reports.

The majority of studies in this systematic review also did not control for adult revictimisation which reduced the integrity of the findings. This is an important variable to consider when investigating childhood maltreatment due to its potential to confound abusive childhood experiences. For example, Briere and Elliott (2003) suggested that traumatic symptoms of childhood maltreatment and

adult revictimisation were highly correlated and therefore traumatic experiences that were attributed to childhood maltreatment may be misplaced and more related to the adult traumatic experiences. Furthermore, because the studies involved participants completing measures shortly after engaging in suicidal behaviour, the level of psychological distress at this point may also be a confounding factor where self-reports are negatively biased and therefore influenced the association between childhood abuse and suicidal behaviour (Coll *et al*, 2001). Finally, all of the studies were cross-sectional and retrospective and therefore no firm conclusions as to the cause between childhood abuse and suicidal behaviour in adulthood can be drawn.

Highlighted above are the common methodological weaknesses across the majority of these reviewed studies that need to be addressed for robust and high-quality research to take place when investigating the association and long-term effects of childhood maltreatment with adults engaging in suicidal behaviour.

1.6.2 Assimilation of results from reviewed studies

This was the first systematic review to look at the association between childhood abuse and adults engaging in suicidal behaviour presenting to a hospital accident and emergency or psychiatric department. With consideration to the limitations discussed the findings of this systematic review demonstrate a possible association between experiences of childhood abuse and subsequent suicidal behaviour in adulthood. Five out of the seven studies that investigated the associations between childhood physical abuse and suicidal behaviour found a

significant association. Seven out of eight studies also found a significant association between both childhood sexual abuse and emotional abuse and adult suicidal behaviour. Two out of the four studies also found a significant link between childhood emotional neglect and adult suicidal behaviour. The results of these studies are consistent with the literature investigating the relationship between childhood abuse and suicidal behaviour in adulthood in clinical, community and student populations (Briere & Zaidi, 1989; Bruffaerts *et al*, 2010; Joiner Jr. *et al*, 2007; Mullen *et al*, 1993; Van der Kolk *et al*, 1991). Jeon *et al*. (2009) found that emotional abuse was significantly associated with lifetime suicidal behaviour in medical students. Brezo *et al*. (2008) carried out a longitudinal community based study and found that adults reporting physical, sexual or both forms of abuse had increased odds of engaging in suicidal behaviour compared to those with no childhood abuse history. Dube *et al*. (2001) carried out a large clinical study and found that adults reporting childhood experiences of emotional, physical and sexual abuse also engaged in high rates of attempting suicide.

Two studies in this systematic review also showed that more experiences of childhood physical, sexual and emotional abuse are also associated with multiple suicide attempts (Forman *et al*, 2004; Ystgaard *et al*, 2004). However, the Forman *et al*. (2004) study did not show a significant difference in the association between child sexual abuse reports and multiple or single suicide attempters. Osvath *et al*. (2004) and Spokas *et al*. (2009) looked at within group suicidal behaviour gender differences. Both studies found that females reported more experiences of

childhood sexual abuse than males. The Spokas *et al.* (2009) study showed however that females with child sexual abuse histories were no more likely to engage in multiple suicide attempts compared to females with no sexual abuse history. However, more males with child sexual abuse histories engaged in significantly more suicide attempts compared to males without an abusive history. Some research suggests that the impact of child sexual abuse maybe more extreme for men than for females, particularly in terms of anger, aggression and suicidal behaviour (Nelson & Hampson, 2008). Nelson (2009) suggests that the meaning and sense men make of their experiences may be different to females and that gender should not be considered merely as a predictor variable but rather understood as a social construct involving social norms of masculinity and femininity.

1.6.3 Overall systematic review limitations

Although the findings of this systematic review demonstrated an association between childhood maltreatment and suicidal behaviour in adulthood, the presence of methodological limitations suggest that the findings of this review need to be treated with circumspection. Firstly, some of the studies included in the systematic review employed a within group design and all of the studies looked at a specific sample of people (those presenting to hospital following suicidal behaviour) therefore limiting generalisability. To improve on this limitation, future systematic reviews could be carried out looking at the association between childhood abuse and adult suicidal behaviour within the

community or longitudinal general population. Robust epidemiological research includes control groups which are matched on a range of socio-demographic, clinical and life stressor variables. However, not all of the case-control studies matched groups on a wide range of these demographic variables therefore introducing false positives and reducing the internal validity of the studies. Hence the reliability of the inferences drawn from the systematic review is limited. The studies in this review also differed in the number of variables being investigated and therefore this would have also influenced the strength of the association between childhood abuse and suicidal behaviour hence limiting comparisons between studies. All of the studies were retrospective and cross-sectional therefore restricting conclusions derived from the results as to the firm causal factors of childhood maltreatment leading to suicidal behaviour in adulthood. In addition, the small sample sizes prevented studies from developing a multi-factorial model to consider how the long-term effects of childhood maltreatment maybe associated with suicidal behaviour in adulthood. Therefore, future systematic reviews should also include studies with large samples to determine possible mediation effects. Finally, not all of the studies had the highest quality assessment rating. However, it was important to include these studies to highlight the methodological weaknesses of research in this area. This would help improve future research looking at the association between childhood abuse and suicidal behaviour with people presenting to accident and emergency hospital departments.

1.6.4 Future research

The findings and limitations of this systematic review suggest further areas of research. For example, not all of the studies in this systematic review considered third factor variables that could potentially mediate the relationship between childhood abuse and suicidal behaviour. Four out of the ten studies considered third factor variables such as loss of a caregiver during childhood (Ystgaard *et al*, 2004), family dysfunction (Kaslow *et al*, 2000), maternal parenting (Coll *et al*, 2001) and low income (Kaslow *et al*, 2002). However, none of the studies looked at the potential mediating role of other variables such as family environment, attachment/parental bonding, emotion regulation strategies as well as psychological variables such as depression and anxiety. Furthermore, none of the studies considered childhood abuse itself as a third variable which could potentially play its own mediating role. Therefore, future research should focus on establishing potential mediating roles such as attachment/parental bonding, emotion regulation and childhood abuse itself in relation to these third variable constructs. This focus would provide a further understanding of the processes involved amongst childhood abuse and subsequent suicidal behaviour in adulthood whilst informing clinical practice.

1.6.5 Clinical implications

There are a number of clinical implications regarding research in this area. When carrying out assessments with people who have engaged in suicidal behaviour, experiences of childhood abuse and the impact of this should be screened for. This detailed assessment should then inform referral to the appropriate service. Further

assessment should also be carried out into family background, parental bonding/attachment experiences whilst growing up, as well as investigating emotion regulation strategies. Research has shown an association between these variables and suicidal and/or deliberate self-harming behaviour (Briere, 2002; Cloitre *et al*, 2008; Gratz, 2007; Langeland *et al*, 2004; Van der Kolk *et al*, 1991). Assessment of these areas would then inform treatment with regards to treatment goals and the therapy employed. Lastly, research into these areas may also inform adolescent services and thus suggest new prevention strategies and treatment.

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CHAPTER 2: BRIDGING INTRODUCTION

2.1 Link between Systematic Review and Thesis

Following from the investigations of the previous systematic review chapter, it is clear that extensive research has been carried out investigating the association between childhood sexual, physical, emotional abuse and neglect with subsequent suicidal behaviour in adulthood (Andrews *et al*, 2004; Briere & Elliott, 2003; Butchart & Harvey, 2006; Coll *et al*, 2001; Dube *et al*, 2001; Kaslow *et al*, 2000; Mullen *et al*, 1996; Santa-Mina & Gallop, 1998). Furthermore wide-ranging research has been carried out examining the relationship between childhood abuse and the development of psychological problems later on in adulthood, such as substance abuse, mood disorders, low self-esteem, anxiety, dissociation, and deliberate self-harm (Alvarez *et al*, 2011; Briere, 2002; Evren *et al*, 2006; Garino *et al*, 2005; Gladstone *et al*, 2004; Mersky & Topitzes, 2009; Thornberry *et al*, 2010). Research has also been conducted on the association between child sexual abuse and interpersonal functioning later on in adulthood (Davis & Petretic-Jackson, 2000).

However research has also shown that childhood maltreatment is not the only correlate associated with suicidal behaviour. In fact there are many other complex psycho-social factors that also contribute to and correlate with people engaging in suicidal behaviour.

On an individual level there has been extensive research demonstrating an association between poor mental health and suicidal behaviour. A review by Fleischmann *et al*. (2005) investigating the association between psychiatric diagnosis and suicidal behaviour found that over half of people engaging in

suicidal behaviour had a diagnosis of mood disorder. This review also found an association between alcohol and substance related disorders and suicidal behaviour (Fleischmann *et al*, 2005). A meta-analysis carried out by Bostwick and Pankratz (2000) showed that inpatients diagnosed with a mood disorder and with a history of suicidal behaviour were more at risk of repeating suicidal behaviour compared to inpatients with a mood disorder and no history of suicidal behaviour. These groups in comparison to the general public with no history of mood disorder were more at risk of engaging in suicidal behaviour. However, Bostwick and Pankratz (2000) also found that specific psychiatric diagnosis did not predict risk of engaging in suicidal behaviour. Another meta-analysis carried out by Pompili *et al.* (2005) found that people diagnosed with borderline personality disorder were at higher risk of engaging in suicidal behaviour and achieving death through suicide compared to the general population. A different review by Van Orden *et al.* (2010) found that depression was more associated with the wish to engage in suicidal behaviour whilst disorders related to impulse control and agitation/anxiety were correlated with the elevated risk of acting upon suicidal thoughts.

Hawton *et al.* (2005) however asserts that studies investigating the association between psychiatric diagnoses such as schizophrenia or mood disorders and suicidal behaviour need to go beyond an individual diagnosis and consider risk of suicidal behaviour as a broader construct. Hawton *et al.* (2005) carried out a systematic review investigating risk factors to suicidal behaviour with people diagnosed with schizophrenia. This review found that past experiences of

depression as well as alcohol and substance misuse placed a person with a diagnosis of schizophrenia at higher risk of engaging in suicidal behaviour. In addition to this an aroused emotional state such as feelings of fear and anxiety also increased the risk of engaging in suicidal behaviour (Hawton *et al*, 2005). Wilcox *et al*. (2004) carried out a review investigating the association between alcohol and substance abuse and suicidal behaviour. This review found that people with alcohol misuse disorder were ten times more at risk of dying from suicide compared to the general public. This review also found that adults who engaged in mixed drug use were also more at risk of engaging in and dying from suicide, more so than alcohol misuse alone (Wilcox *et al*, 2004). Another review by Neeleman (2001) found that people who self harmed were at higher risk of engaging in suicidal behaviour and experiencing death via suicidal behaviour compared to those who did not self-harm.

Although these meta-analyses and systematic reviews have shown an association between poor mental health and suicidal behaviour, not all people with mental health problems go onto engage in suicidal behaviour. Furthermore, risk taking behaviour such as self-harm, alcohol and substance misuse provide one aspect of a bigger more complex picture. Therefore in addition to these factors more subjective internal experiences need to be considered as possible correlates to suicidal behaviour. For example, Brezo *et al*. (2006) carried out a systematic review and found that feelings of hopelessness were associated with suicidal behaviour. Another review by Speckens and Hawton (2005) found that the inability of young people and adults to employ effective social problem solving

skills was associated with a risk of engaging in suicidal behaviour compared to a non-suicidal general population. Other studies have found social isolation to be a risk factor associated to suicidal behaviour. A review by Van Orden *et al.* (2010) reported that 'loneliness, social withdrawal, living alone' and the inability to access social supports were likely to increase the risk of suicidal behaviour (p.5). Findings from this review are supported by studies investigating resilience in young people and adults. For example, a qualitative study by Everall *et al.* (2006) found that young people ceased to engage in suicidal behaviour when their self-perception improved. This helped increase their sense of empowerment and control over their life thereby improving self-esteem and by addressing and acknowledging emotions. Van Orden *et al.* (2010) also highlighted in their review that family environment and conflict were also associated with suicidal behaviour across the lifespan. This review reported that 'family discord, domestic violence, familial stress and perceptions that one is a burden to the family' were risk factors to suicidal behaviour (Van Orden *et al.*, 2010, p. 4).

In addition to micro individual factors, macro social factors are also important when considering correlates to suicidal behaviour. A systematic review carried out by Platt and Hawton (2000) found that unemployment was associated with an elevated risk of adults engaging in suicidal behaviour. However, the authors acknowledged that the size of risk varied from study to study. This review also found that people from a lower social class were more likely to engage in suicidal behaviour (Platt & Hawton, 2000). Rehkopf and Buka (2006) carried out a meta-analysis investigating correlates between suicidal behaviour and socio-economic

rank. This review found that higher socioeconomic status was related to lower risk of engaging in suicidal behaviour. Additional measures into unemployment and education also produced similar findings (Rehkopf & Buka, 2006). A longitudinal study carried out by Fergusson *et al.* (2000) found that vulnerability or resiliency to suicidal behaviour was based on an intricate connection between a wide range of factors involving social advantage/disadvantage, family environment, personality factors and exposure to adverse life events. Positive experiences involving these factors improved resiliency whereas negative experiences enhanced the risk of engaging in suicidal behaviour (Fergusson *et al.*, 2000).

Overall, there are a wide range of complex and intricate psycho-social factors that contribute to people engaging in suicidal behaviour as discussed above. These factors do not appear to occur in isolation and rather they form a complex tapestry based on a person's life experience. However, some correlates to suicidal behaviour need further researching and understanding. The Scottish Government (2008) highlighted that experiences of childhood maltreatment associated with suicidal behaviour was under researched. So although this study understands that there are multifarious and interconnecting factors related to suicidal behaviour, this study will be focusing on an aspect of this picture involving childhood maltreatment, parental bonding and emotion regulation.

Before this study goes onto discuss its conceptual understanding of suicidal behaviour within an attachment/parental bonding and emotion regulation framework this study recognises that no one theory can completely explain this

complex human experience. There are a variety of theories and models trying to explain and understand how correlates to suicidal behaviour (some of which were discussed above) in addition to other socio-cultural factors such as gender, age, ethnicity, culture and geography interweave with each other leading to suicidal behaviour.

Object relations theory which falls under the psychodynamic school of thought suggests a relational/structural model of the psyche where the self relates to the object (typically mother) during the early caregiving relationship (Fonagy & Target, 2003). Therefore the relationship formed with the object is internalised providing the basis for developing the sense of self (Fonagy & Target, 2003; Yates, 2004). Object relations theory also suggests that relationships can be formed with other objects outside of human relationships such as pets and later on in life with alcohol, drugs and other self-destructive relations (Fonagy & Target, 2003; Klee, 2011). Therefore, experiences of trauma in early childhood which in the object relations sense means the caregivers' inability to provide care, nurture and protection can potentially lead to destructive or dysfunctional behaviours as a means of alleviating or stopping the pain and trauma (Yates, 2004). Therefore, object relations theory suggests that psychological problems and self-destructive behaviours arise due to the internalisation of the traumatic self-object relationship which is subsequently re-enacted through relationships across the life span (Fonagy & Target, 2003). Therefore, negative internalisation of the self-object relationship (where the object is experienced as threatening or dangerous) can lead the self to feeling insecure and withdrawn so as to avoid feeling further pain

and disappointment (Little, 2009; Yates, 2004). This experience hinders the development of a positive sense of self which can be carried into adulthood (Yates, 2004). Therefore object relations theory suggests that when a person is engaging in suicidal behaviour the body could represent a separate bad object to where strong emotions of hate and pain are directed in order to kill that part of the object so as to protect the self and cease painful feelings from further arising (Little, 2009; Yates, 2004). Object relations theory therefore suggests that the act of suicide (real or fantasy) is to ‘destroy bad internal objects called introjects...unwanted parts of the self’ (Kernberg & Klein as cited in Kaslow *et al*, 1998, p.779). Winnicott (as cited in Kaslow *et al*, 1998) considered suicide as a means of destroying a part or the whole self when the true self was faced with ‘exploitation or annihilation’ (Winnicott as cited in Kaslow *et al*, 1998, p.779). Object relations theory and attachment theory therefore place importance on the role that the caregiver plays in forming the child, however they differ in what those roles are and pathways leading to positive or negative development of the self (Yates, 2004). Attachment theory will be discussed later in this chapter.

In addition to this psychodynamic theory of suicidal behaviour there are many other sociological, psychological, biological and philosophical perspectives. Discussion of these theories in detail are beyond the scope of this study, however some of these theories are touched on below.

The biological based theories suggest that suicidal behaviour arises from a decreased serotonergic function related to the pre-frontal cortex (Van Orden *et al*,

2010; Yates, 2004). Similar neuro-chemical deficits are found in people with impulsive and/or aggressive behaviour (Nock *et al*, 2008). The diathesis-stress model proposes that psycho-biological factors predispose an individual to engaging in suicidal behaviour. Stressful life events act as a trigger increasing the likelihood of engaging in suicidal behaviour (Nock *et al*, 2008; Van Orden *et al*, 2010). Wenzel and Beck (2008) propose a cognitive theory suggesting that suicidal behaviour is related to cognitive processes which are triggered when a suicide mode or schema is activated from a wide range of psycho-social stressors. Once the suicide schema has been activated it allows feelings of hopelessness to arise. In addition attentional bias and fixation on suicidal cues/thoughts reduce distress therefore reinforcing cognitions related to suicide (Wenzel & Beck, 2008). The authors go onto suggest that engagement into suicidal behaviour occurs when an individual cannot further endure the distress and suffering arising from the 'cognitive-emotional state'(Wenzel & Beck, 2008, p.196).

There are many theories that provide insight into aspects of suicidal behaviour therefore demonstrating the complexity of factors relating to this experience. This study is interested in further understanding the association between childhood abuse and suicidal behaviour in adulthood within the context of attachment/parental bonding and emotion regulation. This study's conceptual and theoretical understanding of these factors are outlined below.

2.2 Attachment and Parental Bonding

‘All of us from the cradle to the grave, are happiest when life is organised as a series of excursions, long or short, from the secure base provided by our attachment figure(s)’ (Bowlby, 1989, p.107).

Bowlby’s (as cited in Cloitre *et al*, 2008) attachment theory explains that the interaction between the child, their environment and propinquity to the primary caregiver enables a child to develop a sense of safety and a secure base from where the larger world can be confidently explored. Attachment theory suggests that in a secure child and caregiver bond a child is able to rely on the attachment figure when feeling distressed, in danger or when in a new/strange situation. The child would feel confident that the attachment figure would be available, respond, tolerate and provide comfort to help the child feel better or more relaxed so that they can subsequently resume exploration of their world (Cloitre *et al*, 2008; Holmes, 1993). Therefore children learn to regulate their emotions and behaviours by awaiting their attachment figure’s reactions towards them (Van der Kolk, 2005). These early attachment bonds also play a role in the development of what Bowlby (as cited in Holmes, 1993) coined internal working models. The internal working model of a child is therefore created by the child internalising the thoughts, emotions and behaviours created within the attachment bond (Van der Kolk, 2005). From this, secure children therefore learn to trust their emotions and how they also relate to the wider world (Van der Kolk, 2005). Thus emotions can be thought of as subjective information providers where they act as translators of present situations by connecting present and past experiences (Streeck-Fischer & Van der Kolk, 2000). For example, children with secure attachment bonds will

learn to recognise and describe their emotions thus enabling communication, letting others know how they feel, what they are thinking and developing internal and external coping strategies (Cloitre *et al*, 2008; Streeck-Fischer & Van der Kolk, 2000).

However, when the child's distress is not tolerated by the attachment figure and the attachment figure continually reacts towards the child in an inconsistent, chaotic, abusive, violent, neglectful, emotionally abusive, absent or critical manner, the child may internalise and make sense of their emotional distress and display as unmanageable (Cloitre *et al*, 2008). This results in the child not being able to order, classify, name or have any sense of control over their experiences, emotions and external world. These children are also unable to regulate their emotional state or trust others for help or support (Streeck-Fischer & Van der Kolk, 2000). Therefore there is a breakdown in the child's ability to regulate their internal and external worlds, which impedes the child's understanding of their experience and develop appropriate strategies to manage the situation (Van der Kolk, 2005). Furthermore these children are at greater risk of developing negative internal working models and hence a negative sense of self. Therefore such children go on to develop insecure attachment patterns and display mistrust of others to help in time of need and they are also unable to regulate or trust their own emotional state (Van der Kolk, 2005). Crittenden (as cited in Streeck-Fischer & Van der Kolk, 2000) asserts that these children go on to develop anxiety, anger and low mood to the point where they may become dissociated and display self-defeating aggression. As a result such children learn to dismiss and discount their

emotions and thoughts (Crittenden as cited in Streeck-Fischer & Van der Kolk, 2000), that is their sense of self. Extensive research has shown that early childhood trauma is associated with compromised adult attachment in a range of clinical and general populations (Alexander *et al*; 1998; Aspelmeier *et al*; 2007; Berry *et al* 2007; McCarthy and Taylor, 1999; Liem *et al*, 1999; Morris *et al*, 2007).

Research into attachment suggests that pivotal to the child-parent bond is the degree of care and control provided by the parent figure (Baumrind, 1971; Bogaerts *et al*, 2005; Nickell *et al*, 2002). Parker *et al*. (1979) developed the Parental Bonding Instrument (PBI) as a means of assessing these two parental constructs. Research has shown that people engaging in suicidal behaviour and suicidal ideation display fearful, preoccupied and insecure attachments (Armsden *et al*, 1990; Lessard *et al*, 1998). This further suggests and supports the association found between parental bonding and suicidal behaviour.

Some studies have investigated the association between parental bonding and adult suicidal behaviour using the PBI. A study by Heider *et al* (2007) found that low maternal and paternal care was associated with suicidal behaviour. Dale *et al*. (2010) found that low parental care and high parental control was associated with risk of repeating suicidal behaviour. This study also found that negative early maladaptive schemas such as defectiveness/shame mediated this relationship. Enns *et al*. (2006) found that low maternal care was associated with suicidal ideation and attempts. However, this study found different forms of childhood

abuse to be stronger predictors of suicidal behaviour in adults such as physical and emotional abuse and neglect than parental bonding constructs. Mullen *et al.* (1993) found that family dysfunction in relation to low care and high control also increased odds of suicidal behaviour in conjunction with experiences of childhood sexual abuse. Beautrais (2002) found that low paternal care and high paternal control was associated with suicidal behaviour in older adults who had also experienced child sexual abuse. A large number of studies investigating the association between parental bonding and suicidal behaviour have also been conducted with adolescents. This research has also found significant associations between parental bonding and suicidal behaviour. For example, Tousignant *et al.* (1993) found that low maternal and paternal care was associated with suicidal behaviour. Beautrais *et al.* (1996) also found low parental care to be associated with and increased the odds of suicidal behaviour in adolescents. The findings from this research suggest that parental care and control factors are associated with subsequent suicidal behaviour in adulthood. This research also supports findings that other early childhood factors such as abuse also play a role along with parental bonding in suicidal behaviour. Research has also shown that the role of childhood abuse in relation to long-term psychological and behavioural problems in adulthood appears to be quite complex. Therefore childhood abuse should not be considered in just a two way relationship, but also further researched as a mediating variable itself. This view taps into the debate and literature around child abuse and family functioning suggesting that child abuse plays an independent role to psychosocial functioning in adulthood (Boney-McCoy & Finkelhor; Higgins *et al.*, 2003).

2.3 Emotion Regulation

Attachment and parental bonding are crucial to child emotional development, particularly in the development of emotion regulation. Although there is no specific definition of emotion regulation, the majority of research in this area recognises Thompson's (1994) definition as a general basis for this construct (Gerow & Kendall, 2002; Morris *et al.*, 2007; Phillips & Power, 2007). This definition is outlined below.

'Emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features to accomplish one's goals.' (Thompson, 1994, pp.27 – 28).

This definition suggests that emotion regulation involves natural internal (intrinsic) and external (extrinsic) processes. Internal processes involve self regulatory factors such as emotional and cognitive appraisal/re-appraisal and interpretation/re-interpretation. (Gerow & Kendall, 2002; Gross and John, 2003; Morris *et al.*, 2007). External processes involve how an individual relates to their environment such as interpersonal relationships with attachment figures and responses to emotions such as ability to express emotions and seeking help to regulate emotions. This also relates back to a child's access to coping sources as an infant's emotion regulation is initially dependent on the acts and responses of others (Gerow & Kendall, 2002; Morris *et al.*, 2007). Therefore emotion regulation involves the precise ability to recognise, accept, and appraise emotions and then to modify or respond to them accordingly (Gross & John, 2003; Phillips & Power, 2007; Thompson, 1994).

Emotion regulation however does not mean to ‘control’ or ‘restrain’ emotion processes (Gerow & Kendall, 2002). The definition suggests that emotion regulation involves the capacity to react in a socially suitable and adaptive fashion to stressors and emotional experiences (Morris *et al.*, 2007). Therefore emotion dysregulation does not mean emotional un-regulation. Cole *et al.* (1994) suggests that the term ‘dysregulated’ is more appropriate than ‘unregulated’ because it highlights that ‘a normal emotional regulatory process is operating in a dysfunctional manner’ (p. 80). Therefore emotions are a crucial aspect of communication and expression and can be considered to have a functional basis (Morris *et al.*, 2007). Examples of this are the ability to defend oneself, gain support and build relationships (Thompson & Calkins, 1996). Thus emotion regulation can be considered as adaptive or maladaptive (Phillips & Power, 2007). This study therefore understands emotion regulation as an internal and external process related to the ability to employ functional or dysfunctional emotion regulation strategies.

Research is starting to show that emotion dysregulation is correlated with deliberate self-harm (Gratz, 2007). Studies such as Gratz and Roemer (2004) found that deliberate self-harm was related to diminished emotional awareness, lack of clarity and acceptance over emotional responses, limited awareness of how to employ useful emotion regulation strategies and difficulty managing behaviours when experiencing negative emotions. Evren and Evren (2005) also found that adults with childhood physical and sexual abuse histories engaged in

deliberate self-harm as a means of regulating and avoiding emotions and were also at higher risk of engaging in suicidal behaviour.

2.4 Associations between parenting, childhood abuse, emotion regulation and suicidal behaviour – Summary of main research findings

Extensive research (as outlined above) has shown that children who have been sexually, physically and emotionally abused as well as neglected are at greater risk of engaging in and repeating suicidal behaviour compared to those with non-abusive histories. Further research has indicated that insecure attachment and poor parental bonding involving low levels of care and high levels of control are also associated with suicidal behaviour in adulthood. Research in this area has also found correlations between poor parental bonding, childhood abuse and subsequent suicidal behaviour in adults and adolescents. Literature investigating emotion regulation suggests that negative childhood experiences such as these affect the development of effective emotion regulation skills. This is because the child is exposed to continual threats and danger from the environment and interpersonal bonds which can be painful and overwhelming for the child and therefore impedes trial and error skills development (Briere, 2002). Research has shown that these early childhood experiences have long-term consequences. Adults with abusive histories are more likely to have not developed effective emotion regulation skills and are therefore vulnerable to emotional internal and external instability (Briere, 2002), for example, not being able to identify, accept,

or respond and an inability to re-appraise emotions and therefore avoid them (Gross & John, 2003). The lack of such emotion regulation skills results in adults dealing with internal states such as painful and/or negative thoughts and emotions by engaging in external behaviours that help the adult to remove and distance themselves from their own internal mind (Briere, 2002). Such external behaviours include alcohol and substance misuse, risky sexual behaviours, eating disorders and self-harming to name a few (Briere, 2002; Butchart & Harvey, 2006). Since these external behaviours are found in people engaging in suicidal behaviour, it could be that suicidal behaviour itself is a manifestation of dysfunctional emotion regulation mediated by childhood abuse and developed through poor parental bonding.

Associations between poor parental bonding, childhood maltreatment, emotion dysregulation and suicidal behaviour have been continually demonstrated in one form or another. However, few factors including these variables have been identified as potential mediators of these associations, particularly with people engaging in suicidal behaviour. Recognising these processes are crucial as this would inform clinical practice and treatment as to the influence of parental bonding, childhood maltreatment and emotional dysregulation on psychological phenomena including suicidal behaviour. Examining possible mediating factors in this area would also fall in line with The Scottish Government's initiatives to reduce the suicide rate. Research in this area is recommended to aid prevention strategies.

This study understands suicidal behaviour in terms of intent and risk of repetition and childhood sexual, physical and emotional abuse and neglect as defined in the previous systematic review chapter.

2.5 Aims and Hypotheses

This study aims to answer the following questions and hypotheses outlined below:

2.5.1 Main Research Hypothesis:

Hypothesis 1 – Mediation Models

Does childhood abuse and emotion dysregulation play a mediating role between parental bonding and suicidal behaviour in adulthood?

- a)** It is hypothesised childhood abuse will play a mediating role between parental bonding (care and control) and suicidal intent.
- b)** It is hypothesised that childhood abuse will play a mediating role between parental bonding (care and control) and risk of repeating suicidal behaviour.
- c)** It is hypothesised that dysfunctional emotion regulation will play a mediating role between parental bonding (care and control) and suicidal intent.
- d)** It is hypothesised that dysfunctional emotion regulation will play a mediating role between parental bonding (care and control) and risk of repeating suicidal behaviour.

2.5.2 Secondary Research Hypotheses – Correlations with suicidal behaviour

Hypothesis 2 – Childhood abuse correlations to suicidal behaviour.

It is hypothesised that: Childhood abuse will be positively correlated with suicidal behaviour constructs (intent and risk or repetition).

Hypothesis 3 – Parental bonding correlations to suicidal behaviour.

It is hypothesised that: Parental care would be negatively correlated and parental control would be positively correlated with suicidal behaviour constructs (intent and risk of repeating suicidal behaviour).

Hypothesis 4 – Emotion Regulation Correlations to suicidal behaviour.

It is hypothesised that: Dysfunctional emotion regulation would be positively correlated and functional emotion regulation would be negatively correlated with suicidal behaviour constructs (intent and risk of repetition).

Hypothesis 5 – Depression and Anxiety Correlations to suicidal behaviour.

It is hypothesised that: Depression and anxiety would be positively correlated with suicidal behaviour constructs (intent and risk of repeating suicidal behaviour).

CHAPTER 3: METHOD

3.1 Design

This study used a correlational design where all participants were recruited from the suicidal behaviour population. All participants within this group completed self-report measures which provided scores on childhood abuse, emotion regulation strategies, parental bonding, suicidal intent, suicidal repetition, depression and anxiety.

3.2 Ethical Approval and Ethical Considerations

This study gave thought to the potential ethical implications of the methodological procedure whilst seeking ethical approval from the relevant NHS health board as well as during data collection. Ethical approval was gained from two departments. First the local NHS health board committee on medical research ethics, and second, the local research and development office. See Appendix 3 for ethical approval letters.

Asking about childhood trauma and suicidal behaviour can potentially cause distress to the participant. Management of this potential risk is discussed in section 3.5. However, NICE (2004) guidelines for self harm including suicidal behaviour state the need to recognise and promote the impact childhood maltreatment can have towards suicidal behaviour later in adulthood. The guidelines propose that psychiatric, social, environmental, psychological factors and context need to be assessed and considered as a whole including:

‘Long-term vulnerability factors including early loss or separation from parents, difficult relationships with parent signified by rejecting or overprotective parenting styles, or abuse in early life. Although sexual abuse has been associated with self harm emotional and physical abuse is also important’ (NICE, Self Harm, 2004, P.151).

Also a review carried out by Newman and Kaloupek (2004) found that people participating in trauma related research found importance in contributing their experiences to enhance research as long as they received support. However potential risks do exist and there was a potential that participants in this study may have disclosed their childhood maltreatment experiences for the first time and may have also wanted to formally report it. There was also the potential that asking about childhood trauma may have re-triggered memories and therefore participants experiencing additional distress. There was also the potential that participants following data collection would feel unhappy possibly guilty or shameful about sharing their childhood experiences and/or current suicidal behaviour as well. However, these potential risks were managed by fully informing the participant of such risks prior to gaining consent to participate in the study. Furthermore, any potential distress experienced would be met with full support from the Liaison Psychiatry team and the medical staff (doctors and nurses) on the ward who were available at all times as part of routine patient healthcare.

By asking personal questions in relation to adverse childhood experiences and participants current suicidal behaviour, there was the potential for the principal investigator to engage with the participants on a therapeutic basis rather than as a clear participant-researcher relationship. Given the highly emotive topics being

addressed during data collection the principal investigator did provide support to the participants by checking how they were feeling and listening to the context of their responses. However, the principal investigator was also aware of the difference in boundaries between a patient-therapist and participant-researcher relationship. The principal investigator was also aware that engaging outside of the participant-researcher relationship could bias the data and impact on participants self-reports such as under or over reporting experiences. Therefore in order to minimise this potential therapeutic milieu on participant data the principal investigator established prior to data collection clear boundaries with the participant as to the role of the researcher and that the researcher was not there in a therapeutic role. Therefore if the participant required this form of support then the team based on the ward encompassing Liaison Psychiatry, medical doctors and nurses would be on hand to provide this role. None of these ethical issues arose whilst carrying out the study.

3.3 Population and Participants

The National Institute for Health and Clinical Excellence (NICE, 2004) guidelines for self harm state that people who are admitted to hospital after an incident of self-harm or suicidal behaviour are eligible for psychosocial assessment and recommend that this should take place within 48 hours of admission. The Liaison Psychiatry Service located at Ninewells Hospital carries out these psychosocial assessments after an individual has been admitted to the Accident and Emergency Short Stay Ward following suicidal behaviour. The Liaison Psychiatry Service at

Ninewells Hospital is a 24 hours 7 days a week service, which is split into the day service running from 9am to 5pm and the out of hours team running from 5pm to 9am. The psychosocial assessments are conducted whilst patients are still admitted on the short stay ward and only after they have been medically cleared, deemed stable and without chronic psychological distress.

In this study potential participants who were admitted to the Short Stay Ward for psychosocial assessment following suicidal behaviour were invited to participate in the current research project. All participants were recruited from the day service. Participants were invited to take part in the study once they had completed their psychosocial assessment and considered appropriate by Liaison Psychiatry. The exclusion criteria which Liaison Psychiatry used to assess and identify potential participants were: Those under 18 and over 65 years old; presenting with psychosis; with a learning disability; with high levels of toxicity or severe medical complications and exhibiting neuropsychological difficulties. Participants were excluded if they exhibited violence, were heavily sedated and therefore not responsive and under police control. Participants were also excluded if they had already participated in the study and therefore each participant was included only once in the study. The principal investigator recruited participants over 71 successive days where self-report measures and semi-structured interviews were carried out to collect data. Over this time frame a total of 69 participants were considered suitable for the study. From this total, 60 participants agreed to take part, gave their consent, and completed the study. Figure 2 details participant recruitment.

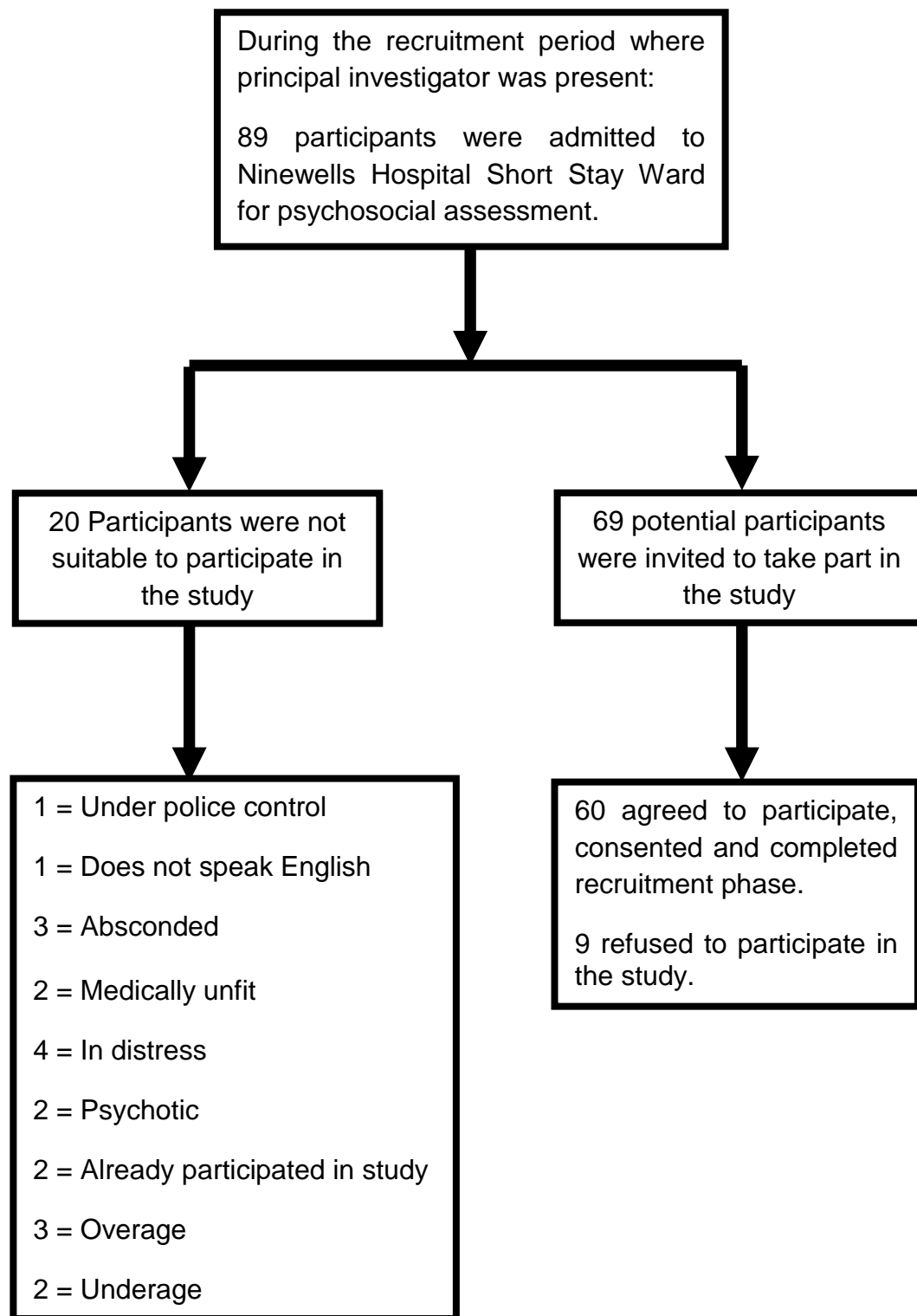


Figure 2. Outline of participant recruitment.

3.4 Measures

The suicidal behaviour sample completed eight self-report measures and also participated in a semi-structured interview to obtain demographic information.

See Appendices 4-11 for example of the self-report measures outlined below.

1. The Traumatic Experiences Checklist (Nijenhuis *et al.* 2002).
2. The Parental Bonding Instrument – Short Form (Pederson, 1994).
3. The Regulation of Emotions Questionnaire (Phillips & Power, 2007).
4. The Emotion Regulation Questionnaire (Gross & John, 2003).
5. The Pierce Suicide Intent Scale (Pierce, 1977).
6. The Risk of Repetition Scale (Buglass & Horton, 1974).
7. The Beck Depression Inventory-II (Beck *et al.* 1995).
8. The Beck Anxiety Inventory (Beck *et al.*, 1988).

3.4.1 The Traumatic Experiences Checklist (TEC)

The TEC was initially developed for the purpose of research which aimed to measure the relationships between traumatic experiences, somatoform and dissociation (Nijenhuis, 2004). The psychometric properties of the TEC was compared with other trauma measures and researched with adult psychiatric outpatients. These outpatients presented with a range of psychological mental health problems such as; anxiety, eating disorders, phobia, bipolar mood disorder, schizophrenia and borderline personality disorder (Nijenhuis *et al.*, 2002). The study found that the TEC psychometric properties are good and reported good validity and reliability with Cronbach's α of 0.86 and 0.90 and the test-retest

reliability showed $r = 0.91$ (Nijenhuis *et al*, 2002). A study by Van der Boom *et al*. (2010) reported TEC Cronbach's α at 0.70. Since the TEC's development it has started to be widely used in research with adults in a range of clinical populations such as borderline personality disorder (Semiz *et al*, 2005); fantasy proneness and dissociation (Van der Boom *et al*, 2010); heroin users (Somer & Avni, 2003); alcohol dependent inpatients (Dom *et al*, 2007); self-mutilation and post traumatic stress disorder (Evren *et al*, 2010) and with student populations (Raes *et al*, 2005).

The TEC is a 29 item self-report questionnaire and was used in this study to measure the reported traumatic experiences of participants, for example, war experiences, loss of a family member, divorce and injury. The items in this questionnaire ask about a range of potentially traumatic experiences preceded by the question 'Did this happen to you?' The TEC items include questions relating to emotional neglect (e.g. being left alone, insufficient affection)', emotional abuse '(e.g. being belittled, teased, called names, threatened verbally, or unjustly punished)', physical abuse '(e.g. being hit, tortured or wounded)', sexual harassment (e.g. acts of a sexual nature that DO NOT involve physical contact)' and sexual abuse (e.g. unwanted sexual acts involving physical contact)'. Each of these questions is asked in relation to immediate family members, extended family members and non-family members. Each question is answered as yes or no and given a score of 1 if yes and a score of 0 if no. The ages at which these experiences occurred are also reported. The subjective level of impact that each traumatic experience had on the participant was also recorded. The impact level

ranged from: 1 = none, 2 = a little bit, 3 = a moderate amount, 4 = quite a lot and 5 = an extreme amount. This study focused on the five traumatic emotional, physical and sexual abuse areas outlined above.

3.4.2 The Parental Bonding Instrument (PBI)

The PBI measures adults' perceptions and recollections of parental or other primary caregiver behaviours and attitudes for the first sixteen years of life. The PBI assess two main factors: care and control, which is applicable to the mother and father separately. Both maternal and paternal scores can be combined to produce parental care and parental control dimensions. Care is defined as the level of parental empathy, warmth and affection or being cold and uncaring. Control is defined as the degree to which a parent is intrusive, infantilising and oppressive or promoting autonomy. Both these dimensions show an inverse relationship. The PBI was initially developed by Parker *et al.* (1979) which consisted of 25 items each for the mother and father. The psychometric characteristics including validity, reliability and stability for this original measure has been extensively documented and verified over 30 years with a vast range of clinical and general populations (Heider *et al.*, 2007; Parker, 1998; Mackinnon *et al.*, 1989; Ravitz *et al.*, 2010).

A short version of the PBI was developed by Pederson (1994) consisting of ten items for each parent respectively. The short version was developed to reduce pressure on research participants (Parker, 1998). The short version measured exactly the same retrospective care (e.g. she was affectionate to me) and control

(e.g. she tried to control everything I did) dimensions as the original. The psychometric properties of this short version have also been researched and found to have good reliability and validity and good test-retest reliability with minimal influence from personality characteristics or mood (Chambers *et al*, 2004; Parker, 1998; Pederson, 1994;). Cronbach's α was reported from 0.69 to 0.78 with test-retest reliability above 0.95 (Pederson, 1994). The short version has not been used as extensively as the original long version but the short form has been validated with other clinical and general populations (Biggam & Power, 1998; Chambers *et al*, 2001; Deas *et al*, 2010).

This study used the short version of the PBI where 5 items were associated with care and 5 items were associated with control for each parent. Each item is measured on a 4 point scale where scores range from 0 – 3 providing a total score of 0 – 15 for each care and control factor. High scores represent a high degree of care and control. Participants rate each item as 'strongly agree,' 'agree,' 'disagree,' and 'strongly disagree.'

3.4.3 The Regulation of Emotions Questionnaire (REQ)

The REQ was developed by Phillips and Power (2007) as a measure to assess emotion regulation in adolescents. The measure was created and sourced from relevant theories pertaining to emotion regulation processes comprising of functional and dysfunctional strategies. Functional strategies involve tolerating and accepting emotions and dysfunctional strategies involve rejecting or denying emotions. Engaging in dysfunctional strategies can lead to heightened emotional

distress (Phillips & Power, 2007). The measure was also based on emotion regulation processes involving internal and external resources. Phillips and Power (2007) explain that internal regulatory strategies tap into an individual's personal resources such as ability to re-evaluate thoughts or perceptions. Furthermore, external regulatory strategies involve the individual using or changing their environment. The REQ is a fairly new measure and therefore not as extensively used as other emotion regulation measures. However, the REQ corresponds with other models of emotion regulation strategies and it is therefore theoretically sound. Phillips and Power (2007) assessed the psychometric properties of the REQ and found good reliability and validity of the measure including good internal consistency of each subscale with Cronbach's α ranging from 0.66 to 0.76. The REQ was also reported to be correlated with other analogous emotion regulation measures (Nesbitt 2010; Phillips and Power 2007). Although the REQ was initially developed for adolescents, the REQ has also been used for research purposes with adult clinical populations such as people with psychosis (Livingstone *et al.* 2009); borderline personality disorder (Forsythe, 2011) and post traumatic stress disorder (Nesbitt, 2010).

The REQ is a 21 item scale which is divided into four subscales: Internal-dysfunctional (e.g. I keep the feeling locked up inside); internal-functional (e.g. I rethink my thoughts or beliefs); external-dysfunctional (e.g. I take my feelings out on others verbally) and external-functional (e.g. I talk to someone about how I feel). Participants were asked to rate in general how often they respond to their emotions on a 5 point scale measured as 'never,' 'seldom,' 'often,' 'very often,'

and ‘always’. There are 5 items in the internal-dysfunctional, internal functional and external-dysfunctional subscales with scores ranging from 5 to 25. The external-functional scale consists of 6 items and scores range from 6 to 30. High scores in each subscale represent a greater use of each strategy.

3.4.4 The Emotion Regulation Questionnaire (ERQ)

In keeping with emotion regulation models the ERQ was developed by Gross and John (2003). The ERQ assesses the employment of two specific emotion regulation strategies known as cognitive reappraisal and expressive suppression. Cognitive reappraisal represents antecedent-focused strategies (Gross & John, 2003). This means measuring the individuals’ ability to change their thoughts about conditions that produce emotions with the aim of modifying the emotional impact of the condition (e.g. When I want to feel less negative emotion, I change the way I’m thinking about the situation). Expressive suppression signifies response-focused strategies (Gross & John, 2003). This denotes the individuals’ ability to impede expressing their emotions after the emotion has been induced (e.g. I control my emotions by not expressing them). Gross and John (2003) assessed the psychometric properties of this measure and found good internal reliability reporting Cronbach’s α from 0.79 to 0.73 with good test-retest reliability $r = 0.69$. The ERQ has been used widely in research with clinical (Joormann & Gotlib, 2010; Livingstone *et al*, 2009; Phillips *et al*, 2009; Van der Meer *et al*, 2009), general (Moore *et al*, 2008) and student (Balzarotti *et al*, 2010; McLean *et al*, 2007; Eftekhari *et al*, 2009; Egloff *et al*, 2006) populations.

The ERQ is a 10 item measure where participants rate their responses on a 7 point scale ranging from strongly disagree to strongly agree. The ERQ is divided into 2 subscales as described above. The cognitive reappraisal scale consists of 6 items and scores range from 6 to 42 and the expressive suppression subscale comprises of 4 items with scores ranging from 4 to 28. Low scores in cognitive reappraisal and high scores in the expressive suppression scales are considered as dysfunctional emotion regulation strategies. High scores in the cognitive reappraisal and low scores in the expressive suppression scales are considered functional emotion regulation strategies.

3.4.5 Beck Depression Inventory-Revised (BDI-II)

The BDI-II is a revised version of the original BDI and was updated in 1995. The psychometric properties of the BDI-II are good and report an internal consistency coefficient alpha of 0.91 (Beck *et al*, 1996).

The BDI-II is a 21 item multiple choice self report measure that assesses depressive symptomology such as sadness, guilt, self-dislike and problems with sleep and appetite (Beck *et al*, 1995). The BDI-II asks participants to rate how they have been feeling over the previous two weeks. Each item is rated on a scale of 0 to 3 with a score range of 0 – 63. High scores represent severe depressive symptoms. The BDI-II has been widely used in research with a range of populations (Bedi *et al*, 2001; Veerman *et al*, 2009) and it is also routinely used in clinical practice.

3.4.6 Beck Anxiety Inventory (BAI)

The BAI was developed by Beck *et al.* (1988) to assess severity of anxiety symptoms such as feeling hot, trembling, heart racing, fear and difficulty breathing. The psychometric properties of the BAI are considered good with an internal consistency coefficient alpha of 0.92 with test-retest reliability of $r = 0.75$ (Beck *et al.*, 1988).

The BAI is a 21 item self-report questionnaire and asks participants to rate how much they have been bothered by such symptoms in the last week on a 4 point scale ranging from 'not at all (0),' 'mildly (1),' 'moderately (2),' and 'severely (3).' Scores range from 0 – 63. High scores represent severe anxiety symptoms. The BAI has been widely used in research with a range of populations (Leyfer *et al.*, 2006) and it is also regularly used in clinical practice.

3.4.7 Pierce Suicide Intent Scale (PSIS)

The PSIS was developed by Pierce (1977) to measure the degree of suicidal intent in patients engaging in deliberate self-injury. The psychometric properties of the PSIS were found to be good reporting reliability of the measure with a correlation coefficient of 0.97 and internal consistency ranging from 0.64 to 0.87 (Pierce, 1977, 1981a). The PSIS was also compared to the Beck (as cited in Pierce, 1977) suicide intent scale and reported high correlations $r = 0.93$, $p < 0.001$.

The PSIS is a 12 item questionnaire divided into 3 sections. The circumstances section consists of 6 questions which are rated by the clinician. The circumstances

involve conditions that the suicidal act occurred in such as isolation, timing, precautions, suicide note, acts of help and anticipation. The self-report section consisted of 4 questions pertaining to subjective thoughts of lethality, intent, premeditation and reaction towards the act. The third section relates to medical risk and lethal outcome of the act. All questions except for premeditation are scored from 0 to 2 and the premeditation item is scored from 0 to 3. The total PSIS score ranged from 0 to 25 with high scores representing a greater degree of the current suicidal intent.

3.4.8 Risk of Repetition Scale

The risk of repetition scale was developed by Buglass and Horton (1974) to measure the risk of repeating suicidal behaviour. Predictive power of the scale prior to and subsequently after validation was calculated and reported at 0.52 indicating stability (Buglass & Horton, 1974). A study by Garzotto *et al.* (1976) supported this finding and further validated the scale by finding significant differentiation between repeaters and non-repeaters. Myers (1988) also reported the validity of the scale with adults presenting with deliberate self harm. More recently Dale *et al.* (2010) used this measure with adults presenting with suicidal behaviour.

The risk of repetition scale is made up of 6 items which indicate further risk of suicidal behaviour: antisocial personality, problem in use of alcohol, previous psychiatric inpatient care, previous psychiatric out-patient care, previous attempted suicide admission and not living with a relative. A score of 1 is given

for each relevant item and therefore the total score ranges from 0 to 6 where high score represent a greater risk of repeating suicidal behaviour.

3.4.9 Demographic Information

Demographic information was also obtained via semi-structured interview. Demographic information consisted of: date of birth, age, gender, marital status, domestic status, accommodation, postcode¹, occupation, family and personal history of psychiatric problems, previous admission to psychiatric hospital and when this occurred, personal history of alcohol and substance misuse, the number of times suicidal behaviour had been engaged in and when this last occurred and had previous suicidal behaviour resulted in hospital admission.

3.5 Procedure

After an individual had been admitted for medical treatment to Ninewells Hospital Accident and Emergency (A&E) Department following suicidal behaviour they were subsequently transferred to the short stay ward. Transfer to the A&E short stay ward took place after the patient was declared as medically stable by doctors. The patient remained on the A&E short stay ward where medical staff monitored them overnight and the patient was then seen the next morning by Liaison Psychiatry to carry out the psychosocial assessment. This process followed NICE

¹ Deprivation category scores were calculated from postcode information.

(2004) guidelines stating that everybody who attended hospital following an episode of self harm including suicidal behaviour should receive psychosocial assessment within 48 hours of admission. Liaison Psychiatry saw the patient for psychosocial assessment once they have been medically cleared by short stay ward doctors usually within 24 hours of initial admission to A&E. This timeframe depended on the patients' presentation such as being sedated following suicidal behaviour. Once Liaison Psychiatry had completed their assessment and screened for suitability to participate in the study the patient was then asked if they would like to obtain further information on the study before deciding to participate. Patients were identified as suitable potential participants by Liaison Psychiatry if they met inclusion criteria which involved patients being medically, neurologically and psychologically stable. Liaison Psychiatry made this decision based on their psycho-social assessment of the patient. If the potential participant wanted further information the principal investigator was then introduced by Liaison psychiatry to the patient. Here the principal investigator presented the patient with a participant information sheet² and informed the patient of the potential risks of participating in the study as well as the support available to them from the ward staff and Liaison Psychiatry. At this point the principal investigator also clearly stated their role as researcher and the opportunity for the patient to ask questions regarding the study was also provided. The potential participants were informed by both the principal investigator and Liaison Psychiatry that

² See appendix 12.

participation in the study would not affect their medical health care and that their medical health care would continue to be provided if they chose not to participate in the study. Once the patient agreed to participate in the study the principal investigator asked the participant to sign a consent form³.

Once consent had been obtained the principal investigator carried out a semi-structured interview to introduce the measures and obtain demographic information. The participant has their own laminated copy of the interview schedule which helped further inform the participant of the measures being used. At this stage the principal investigator also ascertained whether the participant was able to complete the self-report measures themselves or if they would prefer the principal investigator to read the items of the questionnaires out loud and the participant verbally state their responses. On occasion it was necessary for the principal investigator to read the items of the questionnaires out loud. This was because some participants were in bed and attached to medical monitoring devices and therefore found it difficult to move, feeling shaky and therefore found it difficult to hold a pen or participants found difficulty in focusing their vision. In circumstances such as these participants were given enlarged laminated pictures resembling simple bar charts showing the responses for each measure.⁴ Participants would then use these pictures to provide an answer to each of the

³ See Appendix 13

⁴ See Appendix 14.

items read aloud for each measure. The principal investigator would then record each response and double check this with the participant. For those participants that were happy to complete self-report measures by themselves, the principal investigator provided participants with the picture bar charts as an additional visual aid. It was essential to provide participants with this choice of completing the measures as the majority of participants were still quite physically weak. Once participants had completed self-report measures the participants had a further opportunity to ask the principal investigator any additional questions and also allowing time for the participant to express any positive or negative feelings related to data collection. All the participants at the end of data collection reported that they hoped their participation would be useful to the study.

The overall time frame for participation in the study from the point of providing information about the study to measures being completed and allowing time for additional questions ranged from approximately forty five minutes to one hour. All data collection including semi-structured interviews were carried out in the participants private room on the short stay ward and did not interfere with general medical treatment or discharge of the patient.

Potential risk was managed during the data collection process through the prior identification of potential risks and addressing these in the design and data collection process of the study. The main risk factor for this study was the potential to cause emotional or psychological distress given the nature of the questions being asked. For example, questions on childhood physical, sexual and

emotional abuse. This potential risk factor was minimised by informing participants prior to participating in the study that questions in these areas in addition to questions regarding their current suicidal behaviour would be asked. Therefore the participants were aware of any potential distress prior to consenting to the study. During the data collection process the principal investigator regularly asked participants how they were feeling and providing them with the option to opt out of the study if they were feeling upset. Additional time was allocated at the end of the data collection process to allow participants to ask further questions or express any difficulties they felt during data collection.

With regards to addressing this in the design of the study, all the measures used had been previously used in other clinical research. Furthermore, the questions did not ask anything about suicidal behaviour which had not already been discussed with the Liaison Psychiatry team. To minimise any potential distress participants were informed that the same member of the Liaison Psychiatry team that carried out the psycho-social assessment as well as ward medical doctors and nursing staff would also be on hand if needed for any additional support following data collection.

3.6 Analysis of Data

3.6.1 Data Analysis

The Statistical Package for Social Sciences (SPSS) Version 17 for Windows was used for statistical analysis. Descriptive statistics were used to analyse demographic information. Statistical analysis comprised of Independent t-tests to investigate differences between two groups arising from the suicidal behaviour group. The research hypotheses were investigated by conducting within group analysis involving bivariate statistics of Pearson's r correlations and point-biserial correlations. These were carried out to investigate relationships between variables. To analyse potential mediating variables, this study used the Baron and Kenny (1986) mediation procedure. This involved carrying out a sequence of simple and standard multiple regression analyses at each point of the potential models.

3.6.2 Statistical Power

The number of participants needed to achieve a statistically significant result was determined by examining other studies investigating mediating variables within a suicidal behaviour sample. The main study used for guidance on statistical power for this group was by Dale *et al.* (2010). This study investigated early maladaptive schemas as a mediating factor between parental bonding and suicidal behaviour. This study used a sample size of 60 to gain a medium effect size where α was set at 0.05. Further guidance was also sought from Clark-Carter (2010). Using multiple regression analysis to investigate the possible mediating role of childhood maltreatment and emotion regulation strategies between parental

bonding and suicidal behaviour a sample size ranging from 60 – 80 participants would be needed to attain power at 0.8 where $\alpha = 0.05$.

CHAPTER 4: RESULTS

4.1 Examination and Exploration of Data

Preceding statistical analyses, the data were examined and explored for overall distribution. Data were examined for the presence of any significant skewness and kurtosis. This was investigated by calculating the skewness/kurtosis index divided by its standard error with absolute values greater than 3.29 suggesting a significant departure from normality. Calculations showed no significant skewness or kurtosis.

Examination of box plots and stem-and-leaf plots highlighted 2 outliers. Further investigation showed that these outliers were acceptable as the values were valid for the measures and also formed part of the overall picture of the suicidal behaviour group. Therefore these outliers were not removed and were included in all analyses. Clark-Carter (2010) also asserts the justification of including outliers and removal should only be considered if the outliers represent values not within the range of the scale being used.

Given that the assumptions of normality were met, parametric tests were used to investigate the hypotheses. Statisticians nevertheless have suggested that parametric tests are accurate and robust even when assumptions of normality are violated (Clark-Carter, 2010). Statistical significance was identified at the <0.05 level.

A numerical value was placed in substitution of individual missing data in order to eliminate these from statistical analysis and also allowing these gaps to be

easily recognised. One participant did not complete the PBI maternal form and 5 participants did not complete the PBI paternal form. A mean care and control score was calculated from the 59 participants who completed the maternal form and another mean care and control score was computed from the 55 participants who completed the paternal form. These mean scores replaced the missing values creating an equal number of participants in each PBI variable ($N = 60$). One participant did not complete a question for the REQ-Internal Functional Scale and similarly the missing value within this scale was replaced by a calculated mean from the scores of the remaining 59 participants. Deprivation Category scores were not available for 4 participants.

This study aimed to assess the caregivers overall parenting scores and not differentiate between maternal and paternal results. Therefore maternal and paternal care and control domains were amalgamated to generate parental care and parental control dimensions. This procedure for analysing the PBI data was originally established by Parker *et al.* (1979). This practice was employed in a recent study by Dale *et al.* (2010) investigating parental bonding and suicidal behaviour as well as other research by Betts *et al.* (2009), Park (2009) and Joyce *et al.* (2006). The current study also chose to combine the maternal and paternal care and control scores in order to augment statistical power. In support of this action Randolph and Dykman (1998) suggested that combining maternal and paternal care and control scores could produce greater predictive power and also highlighted inconsistencies in discerning parental bonding between mothers and fathers. Inter-correlations within the PBI found that maternal care and paternal

care ($r = .38, p = 0.003$) and maternal control and paternal control ($r = .31, p = .015$) were significantly correlated.

Bivariate analysis was used to further explore the emotion regulation (REQ and ERQ) and suicidal behaviour (intent and risk of repetition) measures. Table 7 presents a correlation matrix for the emotion regulation REQ and ERQ subscales.

The REQ-internal functional ($r = .544, p = 0.001$) and REQ-external functional ($r = .449, p = 0.001$) scales were positively correlated with the ERQ-cognitive reappraisal scale. This means the more REQ-functional strategies are used the more the adaptive cognitive reappraisal strategy is also used.

Table 7. Correlation matrix of emotion regulation REQ and ERQ subscales (n = 60)

	ERQ - Cognitive Reappraisal	ERQ - Expressive Suppression
REQ- Internal Dysfunctional	-.429**	.539**
REQ- Internal Functional	.544**	-.373**
REQ-External Dysfunctional	.067	-.060
REQ-External Functional	.449**	-.455**

** Correlation is significant at the 0.01 level (2-tailed)

The REQ-internal functional ($r = -.373, p = .003$) and REQ-external functional ($r = -.455, p = 0.000$) scales were also significantly negatively correlated with ERQ-expressive suppression. Similarly, this means the less REQ-functional strategies are used, the more maladaptive ERQ-suppression strategy is used.

The REQ-internal dysfunctional scale was significantly negatively correlated with ERQ-cognitive reappraisal ($r = -.429, p = 0.001$) and positively correlated with expressive suppression ($r = .539, p = .000$). This means the more REQ-internal dysfunctional strategy is used the less adaptive ERQ-cognitive reappraisal is used and the more maladaptive ERQ-suppression strategy is used.

The REQ-external dysfunctional scale was not significantly correlated with the ERQ-cognitive reappraisal or suppression scales.

4.2 Demographic Data

The response rate for the suicidal behaviour sample was 87% ($N = 60$). Descriptive data of the sample are presented in Table 8.

Table 8. Demographic information for the suicidal behaviour sample (N = 60)

Gender	Mean Age	Marital Status	Domestic Status	Accommodation	Occupation
Female = 38 (63.3%)	33.6 Years, SD = 12.9	Single = 34 (56.7%)	Living alone = 34 (56.7%)	Council rent = 25 (41.7%)	Unemployed = 30 (50%)
Male = 22 (36.7%)	Range = 18-65 Years	With Partner = 11 (18.3%) Divorced = 7 (11.7%) Separated = 4 (6.7%) Married = 2 (3.3%) Widowed = 2 (3.3%)	Living with children = 7 (11.7%) Living with parents = 6 (10%) Living with friends = 6 (10%) Living with partner = 5 (8.3%) Living with partner and children = 2 (3.3%)	Own home = 15 (25%) Private rent = 12 (20%) Hostel supported accommodation = 3 (5%) Student accommodation = 5 (8.3%)	Student = 12 (20%) Manual = 8 (13.3%) Technical = 3 (5%) Professional = 7 (11.7%)

Table 9 illustrates the economic status of the group sourced from deprivation category (DEPCAT) scores⁵. DEPCAT 1 represents the most prosperous postcode area and DEPCAT 7 represents the most deprived postcode area (McLoone, 2004).

⁵ DEPCAT scores were based on postcode sectors calculated by Carstairs and Morris (2001) and taken from a recent public health study for the Medical Research Council by McLoone (2004).

Table 9. Socio-economic status of the suicidal behaviour group (N = 56)

Deprivation Category	Frequency	Percentage
DEPCAT 1	1	1.7
DEPCAT 2	3	5.0
DEPCAT 3	10	16.7
DEPCAT 4	9	15.0
DEPCAT 5	8	13.3
DEPCAT 6	17	28.3
DEPCAT 7	8	13.3

Information regarding personal history of alcohol problems and substance misuse was also gathered. 35 (58.3%) of participants reported experiencing alcohol problems and 25 (33.3%) reported problems with substance misuse.

The method of current suicidal behaviour that participants presented with at Ninewells hospital accident and emergency department is outlined in Table 10.

Table 10. Method of suicidal behaviour recorded during admission to hospital (N=60)

Suicidal Behaviour	<ul style="list-style-type: none"> • Overdose with alcohol = 42 (70%) • Overdose without alcohol = 10 (16.7%) • Cutting wrists = 5 (8.3%) • Stabbing = 2 (3.3%) • Hanging = 1 (1.7%)
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Data regarding previous suicidal behaviour was also collected. 39 (65%) of participants reported to have previously engaged in suicidal behaviour whilst the remaining 21 (35%) reported their current episode as their first time. All 65% of repeaters reported that previous suicidal behaviour had resulted in hospital admission and the frequency of this is reported in Table 11. Previous attempts displayed a mean of 3.5 (SD = 4.4) with a range from 1 – 15.

Table 11. Number of people from suicidal behaviour sample with previous suicide attempts resulting in hospital admission.

Previous suicide attempts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of people	5	7	7	4	4	2	1	0	1	0	0	4	0	3	1

The length of time since the last suicidal behaviour was recorded and the responses were classified into six groups: Within the last week (2 participants); within the last month (7 participants); within the last six months (13 participants);

within the last year (6 participants); within the last five years (8 participants) and more than five years ago (3 participants).

Participants were also asked about their psychiatric history. Thirty two (53.3%) of participants reported experiencing a family history of psychiatric problems. Fifty (83.3%) disclosed that they had experienced personal history of psychiatric problems with 16 (26.7%) stating previous admission to a psychiatric hospital. Out of this latter group 3 (5.0%) reported last admission to a psychiatric hospital within the last six months, 4 (6.7%) within the last year, 4 (6.7%) within the last five years and 5 (8.3%) more than five years ago.

With regards to childhood trauma, Table 12 shows the prevalence of the childhood maltreatment variables up till the age of 18 years found within this suicidal behaviour sample and also by gender.

Table 12. Prevalence of childhood maltreatment variables within sample and by gender

	No. (%) of participants reporting:					
	Total no. (%)	Emotional Neglect	Emotional Abuse	Physical Abuse	Sexual Harassment	Sexual Abuse
All Participants	60 (100)	38 (63.3)	39 (65)	31 (51.7)	16 (26.7)	19 (31.7)
Male	22 (36.7)	15 (68.2)	14 (63.6)	14 (63.6)	5 (22.7)	7 (31.8)
Female	38 (63.3)	23 (60.5)	25 (65.8)	17 (44.7)	11 (28.9)	12 (31.6)

Pearson's Chi-square analyses showed no significant associations between the individual childhood maltreatment variables and gender.

Table 13 illustrates the associations between repetition of suicidal behaviour and childhood maltreatment factors. Pearson's Chi-square analyses were also carried out between the five individual childhood maltreatment factors and repetition of suicidal behaviour. The analyses showed that there was a significant association between experiences of emotional abuse and repetition of suicidal behaviour $\chi^2 (1) = 14.24, p < 0.01$. The odds ratio appears to suggest that participants were 9.09 times more likely to repeat suicidal behaviour if they had experienced childhood emotional abuse and Cramer's V (.35; $p < 0.01$) confirmed the strength of this association. Childhood physical abuse ($\chi^2 (1) = 4.35, p < 0.05$), sexual harassment ($\chi^2 (1) = 4.86, p < 0.05$) and sexual abuse ($\chi^2 (1) = 7.32, p < 0.01$) were also significantly associated with repeating suicidal behaviour. Based on the odds ratio, participants exposed to childhood physical abuse were 3.21 times more likely to repeat suicidal behaviour. Those who had experienced sexual harassment were 5.43 times more likely to carry out suicidal behaviour again; and participants exposed to childhood sexual abuse were 7.16 times more likely to re-engage in suicidal behaviour. Cramer's V for physical abuse (.37; $p < 0.05$); sexual harassment (.38; $p < 0.05$) and sexual abuse (.35; $P < 0.01$) further confirms the strength of the association between childhood maltreatment and repeating suicidal behaviour.

Table 13. Associations between childhood maltreatment variables and repetition

Childhood Maltreatment	Repeaters (n=39)		Non-repeaters (n=21)		χ^2	OR	95% CI
	%	(n)	%	(n)			
Emotional Neglect	72	28	48	10	3.44	2.78	.32-1.58
Emotional Abuse	82	32	33	7	14.24**	9.09	.29-1.59
Physical Abuse	62	24	33	7	4.35*	3.21	.47-1.51
Sexual Harassment	36	14	10	2	4.86*	5.43	.60-1.14
Sexual Abuse	44	17	10	2	7.32**	7.16	.59-1.24

* $p < 0.05$, ** $p < 0.01$

Table 14 shows descriptive statistics for the self report measures in relation to males, females, repeaters and non-repeaters. Independent t-tests were carried out to investigate differences between scores on self report measures and gender; as well as between self report measures and repetition of suicidal behaviour. This analysis showed a significant difference of suicidal intent between males and females $t(58) = 3.03$, $p < 0.01$, $r = .37$ (a medium effect). Further significant differences were found between repeaters and non-repeaters for the BDI $t(58) = 2.47$, $p < 0.05$, $r = .31$ (a medium effect), risk of repetition $t(27.64) = 4.49$, $p < 0.01$, $r = .65$ (a large effect), parental care $t(58) = 2.19$, $p < 0.05$, $r = .38$ (a medium effect), REQ internal functional $t(58) = 2.38$, $p < 0.05$, $r = .31$ (a medium effect) and ERQ expressive suppression $t(58) = 3.08$, $p < 0.01$, $r = .47$ (a medium effect).

Table 14. Mean (SD) of self report measures for males, females, repeaters and non-repeaters

Measure	Males (n = 22)	Females (n = 38)	Repeaters (n = 39)	Non-repeaters (n = 21)
BDI	35.32 (11.4)	34.37 (14.8)	37.77 (13.4)*	29.05 (12.1)*
BAI	23.18 (14.0)	28.26 (11.8)	27.58 (14.0)	23.71 (9.9)
PSIS	14.55 (4.6)**	10.42 (5.3)**	12.23 (5.2)	11.38 (5.7)
Risk of repetition	4.00 (1.4)	3.74 (1.3)	4.41 (0.9)**	2.76 (1.5)**
PBI				
Care	13.22 (7.3)	12.75 (5.9)	11.63 (6.5)*	15.33 (5.6)*
Control	12.48 (3.5)	12.58 (4.2)	12.56 (4.5)	12.50 (2.6)
REQ				
Internal-dysfunctional	18.18 (2.9)	16.39 (3.5)	17.44 (3.3)	16.33 (3.4)
Internal-functional	11.64 (2.4)	11.70 (2.6)	11.13 (2.5)*	12.69 (2.1)*
External-dysfunctional	8.36 (3.3)	8.95 (3.2)	8.79 (3.3)	8.62 (3.1)
External-functional	12.41 (3.5)	13.68 (3.4)	12.67 (3.8)	14.24 (2.6)
ERQ				
Reappraisal	20.05 (10.1)	20.61 (7.5)	19.67 (8.3)	21.76 (8.8)
Suppression	22.00 (4.1)	21.39 (4.7)	22.85 (3.6)**	19.33 (5.0)**

* $p < 0.05$, ** $p < 0.01$. Alpha level was adjusted to 0.01.

Table 15 illustrates descriptive statistics for the self report measures regarding participants with and without experiences of emotional and sexual abuse. The emotional abuse element involves those with experiences of both emotional abuse and neglect. The sexual abuse component involves those with experiences of sexual abuse and sexual harassment.

Table 15. Mean (SD) of self report measures for experiences of emotional and sexual abuse.

Measure	Emotional Abuse		Sexual abuse	
	Yes (n=45)	No (n=15)	Yes (n=20)	No (n=40)
BDI	26.53 (13.07)	26.00 (12.35)	29.55 (15.27)*	24.83 (11.23)*
BAI	36.20 (12.98)	30.27 (14.74)	41.05 (13.80)	31.55 (12.44)
PSIS	12.18 (5.28)	11.20 (5.94)	14.30 (5.28)*	10.75 (5.15)*
Risk of repetition	4.04 (1.26)*	3.20 (1.66)*	4.45 (0.95)*	3.53 (1.50)*
PBI				
Care	11.60 (6.49)*	16.89 (4.36)*	9.79 (7.32)*	14.49 (5.37)*
Control	12.94 (3.86)	11.35 (4.17)	14.63 (3.43)*	11.50 (3.83)*
REQ				
Internal-dysfunctional	17.29 (3.28)	16.33 (3.87)	18.05 (3.12)	16.55 (3.50)
Internal-functional	11.44 (2.65)	12.36 (1.95)	11.30 (2.38)	11.86 (2.57)
External-dysfunctional	8.80 (3.25)	8.53 (3.48)	8.30 (3.29)	8.95 (3.30)
External-functional	13.09 (3.60)	13.60 (3.36)	12.60 (4.32)	13.53 (3.06)
ERQ				
Reappraisal	19.73 (8.44)	22.40 (8.72)	18.45 (9.91)	21.38 (7.68)
Suppression	21.47 (4.13)	22.07 (5.61)	22.90 (4.29)	20.98 (4.52)

* $p < 0.05$, ** $p < 0.01$. Alpha level was adjusted to 0.01.

Independent t-tests were carried out to investigate differences between scores on self report measures and experiences of emotional abuse and sexual abuse respectively. This analysis showed a significant difference of risk of repeating suicidal behaviour between those who did and did not experience emotional abuse $t(58) = 2.073$, $p < 0.05$, $r = .26$ (a small effect). A further significant difference regarding parental care was found between participants with and without

experiences of emotional abuse $t(58) = 2.929, p < 0.05, r = .46$ (a medium effect). Further significant differences were found between those who had and had not experienced sexual abuse for BDI $t(58) = 2.688, p < 0.05, r = .33$ (a medium effect), PSIS $t(58) = -2.493, p < 0.05, r = .31$ (a medium effect), risk of repetition $t(58) = 2.511, p < 0.05, r = .11$ (a small effect), parental care $t(29.56) = 2.550, p < 0.05, r = .42$ (a medium effect) and parental control $t(58) = 3.075, p < 0.05, r = .37$ (a medium effect).

4.3 Secondary research hypothesis testing – Correlational analysis

Point-biserial correlations were performed to investigate relationships between childhood maltreatment variables and BDI, parental bonding, emotion regulation REQ and ERQ and suicidal behaviour constructs (intent and risk of repetition). Pearson's r correlations were used to analyse the relationships between BDI, parental bonding, REQ, ERQ and suicidal behaviour constructs. Alpha level was adjusted to 0.01. The relationships between all these variables can be found in Table 16. The correlation matrix shows a number of these variables to be highly correlated (2-tailed, $n = 60$). The hypotheses are detailed below.

Table 16. Correlation matrix illustrating relationships between hypothesised variables (n = 60)

	BDI	PSIS	Risk of Repetition	Parental Care	Parental Control	REQ-ID	REQ-IF	REQ-ED	REQ-EF	ERQ-Reappraisal	ERQ-Suppression
Emotional Neglect	.161	.061	.132	-.521**	.322*	.093	-.106	-.083	-.091	-.148	-.081
Emotional Abuse	.130	-.003	.464**	-.352**	.101	.155	-.215	.079	-.145	-.110	.109
Physical Abuse	.277*	.224	.315*	-.418**	.235	.152	-.320*	-.028	-.207	-.163	.104
Sexual Harassment	.245	.274*	.235	-.302*	.334**	.124	-.012	-.159	-.037	.021	.119
Sexual Abuse	.281*	.255*	.262*	-.383**	.423**	.201	-.098	-.098	-.104	-.189	.155
BDI	1	.603**	.381**	-.264*	.032	.530**	-.330*	-.294*	-.465**	-.312*	.448**
PSIS	.603**	1				.369**	-.183	-.188	-.367**	-.103	.275*
Risk of Repetition	.381**	.210	1			.294*	-.476**	-.072	-.448**	-.418**	.499**
Parental Care	-.264*	.005	-.262*	1		-.055	.232	-.009	.405**	.179	-.158
Parental Control	.032	.059	0.36		1	-.033	-.147	-.007	-.106	-.260*	-.073

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed); Alpha level was adjusted to 0.01

4.3.1 Hypothesis 2: Childhood maltreatment and suicidal behaviour constructs.

It was hypothesised that childhood maltreatment variables up till the age of 18 years would be correlated with suicidal behaviour constructs of:

1. Suicidal intent
2. Risk of repetition.

The bivariate analysis demonstrated that sexual harassment and suicidal intent ($r_{pb} = .27, p < 0.05$; a small effect) and sexual abuse and suicidal intent ($r_{pb} = .36, p < 0.05$; a medium effect) were significantly correlated. Emotional abuse, neglect and physical abuse were not significantly related to suicidal intent.

The analysis showed that emotional abuse ($r_{pb} = .46, p < 0.01$; a large effect), physical abuse ($r_{pb} = .32, p < 0.05$; a medium effect) and sexual abuse ($r_{pb} = .26, p < 0.05$; a small effect) were significantly correlated with risk of repetition. Emotional neglect and sexual harassment were not significantly associated with risk of repetition. These associations are portrayed in table 16.

4.3.2 Hypothesis 3: Parental bonding and suicidal constructs.

It was hypothesised that parental bonding constructs (care and control) would be correlated with suicidal behaviour constructs (risk of repetition and suicidal intent). Parental care ($r = -.26, p < 0.05$, a small effect) was significantly associated with risk of repeating suicidal behaviour. However, parental control was not significantly related to risk of repetition. Furthermore, parental care and

parental control were not significantly correlated with suicidal intent. See Table 16.

4.3.3 Hypothesis 4. Emotion regulation and suicidal behaviour constructs.

It was hypothesised that emotion regulation (REQ and ERQ) strategies would be correlated with suicidal behaviour constructs (intent and risk of repetition). REQ-internal dysfunctional ($r = .47, p < 0.01$, a medium effect), REQ-external functional ($r = -.47, p < 0.01$, a medium effect) and ERQ-suppression ($r = .38, p < 0.05$, a medium effect) were significantly correlated with suicidal intent.

REQ-internal dysfunctional ($r = .29, p < 0.05$, a small effect), REQ-internal functional ($r = -.58, p < 0.01$, a large effect), REQ-external functional ($r = -.45, p < 0.01$, a medium effect), ERQ-reappraisal ($r = -.42, p < 0.01$, a medium effect) and ERQ-suppression ($r = .50, p < 0.01$, a large effect) were all significantly correlated with risk of repeating suicidal behaviour. These relationships are displayed in Table 16.

4.3.4 Hypothesis 5. Depression and suicidal behaviour constructs.

It was hypothesised that depression and anxiety would be correlated with suicidal behaviour constructs (intent and risk of repetition). Depression ($r = .60, p < 0.01$, a large effect) was significantly associated with suicidal intent. Depression ($r = .38, p < 0.01$, a medium effect) was significantly correlated with risk of repetition. These associations are portrayed in Table 16. Anxiety was not significantly correlated with suicidal behaviour constructs intent and risk of repetition.

4.4 Additional correlations from exploring the data – not part of study hypotheses

4.4.1 Childhood maltreatment and parental bonding constructs.

It was hypothesised that childhood maltreatment variables up till the age of 18 years would be correlated with parental bonding constructs of:

1. Parental care
2. Parental control

Emotional neglect ($r_{pb} = -0.52$, $p < 0.01$; a large effect), emotional abuse ($r_{pb} = -0.35$, $p < 0.01$; a medium effect), physical abuse ($r_{pb} = -0.42$, $p < 0.01$, a medium effect), sexual harassment ($r_{pb} = -0.30$, $p < 0.05$, a medium effect) and sexual abuse ($r_{pb} = -0.38$, $p < 0.01$, a medium effect) were all significantly and negatively correlated with parental care.

Emotional neglect ($r_{pb} = 0.32$, $p < 0.05$, a medium effect), sexual harassment ($r_{pb} = 0.33$, $p < 0.01$, a medium effect) and sexual abuse ($r_{pb} = 0.42$, $p < 0.01$, a medium effect) showed a significant relationship with parental control. Emotional and physical abuses were not significantly associated with parental control. These relationships are in Table 16.

4.4.2 Childhood maltreatment and emotion regulation (REQ and ERQ) constructs.

It was hypothesised that childhood maltreatment up till the age of 18 years would be correlated with emotion regulation constructs. Physical abuse ($r_{pb} = -.32$, $p < 0.05$, a medium effect) was significantly correlated with REQ-internal functional strategies. There were no other significant associations between childhood maltreatment variables and emotion regulation (REQ and ERQ) constructs. See Table 16.

4.4.3 Childhood maltreatment and depression.

It was hypothesised that childhood maltreatment up till the age of 18 years would be associated with depression in adulthood. Childhood physical abuse ($r_{pb} = .38$, $p < 0.05$, a medium effect) and sexual abuse ($r_{pb} = .28$, $p < 0.05$, a small effect) were significantly associated with depression in adulthood. Emotional neglect, emotional abuse and sexual harassment were not significantly associated with depression. These associations are shown in Table 16.

4.4.4 Parental bonding and emotion regulation (REQ and ERQ) constructs.

It was hypothesised that parental bonding constructs (care and control) would be correlated with emotion regulation strategies. Parental care ($r = .41$, $p < 0.01$, a medium effect) was significantly related to REQ-external functional strategy and parental control ($r = -.26$, $p < 0.05$, a small effect) was significantly correlated with ERQ-reappraisal. Parental care and parental control were not significantly

associated with the other REQ and ERQ emotion regulation constructs. These associations are displayed in Table 16.

4.4.5 Parental bonding and depression.

It was hypothesised that parental bonding domains (care and control) would be correlated with depression. Parental care ($r = -.26, p < 0.05$, a small effect) was significantly related to depression. However, parental control was not significantly associated with depression. See table 16.

4.4.6 Emotion regulation constructs and depression.

It was hypothesised that emotion regulation constructs would be correlated with depression. REQ-internal dysfunctional ($r = .53, p < 0.01$, a large effect), REQ-internal functional ($r = -.33, p < 0.05$, a medium effect), REQ-external dysfunctional ($r = -.29, p < 0.05$, a small effect), REQ-external functional ($r = -.57, p < 0.01$, a large effect), ERQ-reappraisal ($r = -.31, p < 0.05$, a medium effect), ERQ-suppression ($r = .45, p < 0.01$, a medium effect) were all significantly correlated with depression. These associations are in Table 16.

4.5 Main Research Hypothesis – Hypothesis 1: Mediational Models – The mediating role of childhood trauma and emotion regulation strategies.

A sequence of regression analyses were performed as outlined by Baron and Kenny (1986) to test the question do childhood trauma and emotion regulation strategies mediate the connection between parental bonding and suicidal behaviour? Baron and Kenny (1986) detail two phases that are essential to conducting mediation analysis. First, all the variables in the mediational model must show inter-correlations. Significant inter-correlations were found between parental care with childhood maltreatment consisting of physical, sexual and emotional abuse and the suicidal behaviour construct risk of repetition. Further inter-correlations were found between parental care, the emotion regulation strategy REQ-external functional and risk of repetition and also childhood physical abuse, the emotion regulation strategy REQ-internal functional and risk of repetition. Based on these inter-correlations five mediational models were therefore analysed: Three investigating parental care with physical, sexual and emotional abuse; one examining parental care with emotion regulation strategy REQ-external functional and risk of repetition; and one analysing physical abuse with emotion regulation strategy REQ-internal functional and risk of repetition.

The second phase required completing three simple regression analyses. Baron and Kenny (1986) assert that simple regression analyses are sufficient to test the paths of the mediational model and that hierarchical or stepwise regression analyses are not essential. Baron and Kenny (1986) state that a mediator variable

is established when the following conditions are met: The first condition requires regressing the prospective mediator variable onto the predictor variable. Here the predictor variable must affect the mediator variable. The second condition involves the regression of the outcome variable on the predictor variable, where the predictor variable must affect the outcome variable. The third and final condition requires regressing the outcome variable on the predictor variable and the mediating variable concurrently. Baron and Kenny (1986) suggest that when the predictor variable ceases to have an effect on the outcome variable then a firm conclusion can be drawn for a single and dominant mediator. Figure 3 illustrates a mediation analysis model.

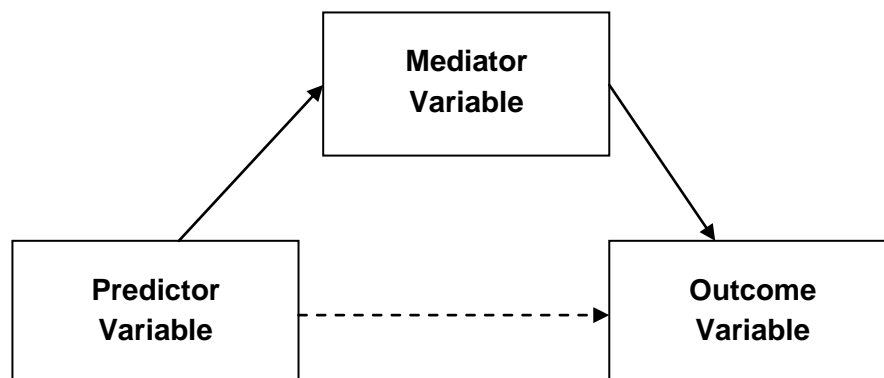


Figure 3. Example of mediation analysis model.⁶

⁶ Solid arrow equates a significant link and a dashed arrow equates a non-significant link and this is applied to all mediation models in this chapter. Model above also demonstrates a perfect mediation.

4.5.1 Mediation model 1: Parental care, childhood physical abuse and risk of repetition.

Childhood physical abuse was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on childhood physical abuse $\beta = -0.418$, $p = 0.001$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = -0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and childhood physical abuse concurrently. At this node Figure 4 shows that both parental care with a standardised beta coefficient $\beta = -0.158$ and childhood physical abuse showing a standardised beta weight of $\beta = 0.249$ were not significant. Therefore perfect mediation was not achieved and no mediating relationship was discovered.

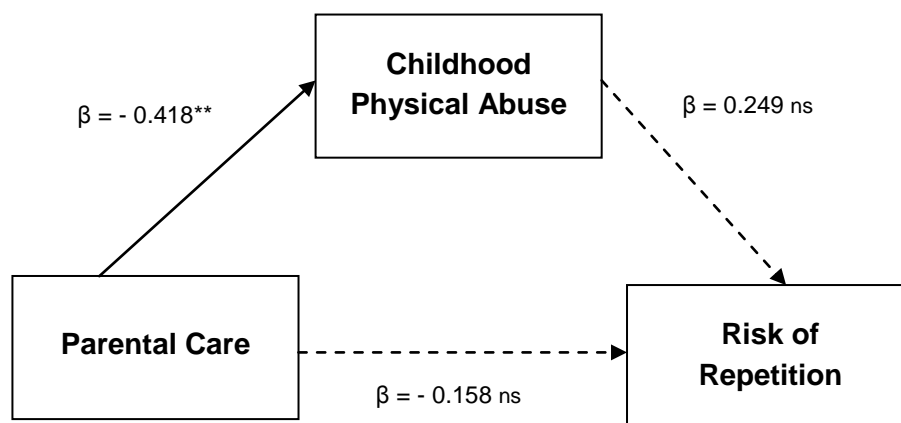


Figure 4. Standardised β coefficients of the pathways between parental care, childhood physical abuse and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

4.5.2 Mediation model 2: Parental care, childhood sexual abuse and risk of repetition

Childhood sexual abuse was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on childhood sexual abuse $\beta = -0.383$, $p = 0.003$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = -0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and childhood sexual abuse concurrently. At this stage Figure 5 shows that both parental care with a standardised beta coefficient $\beta = -0.190$ and childhood sexual abuse showing a standardised beta weight of $\beta = 0.189$ were not significant. Therefore perfect mediation was not achieved and no mediating relationship was discovered.

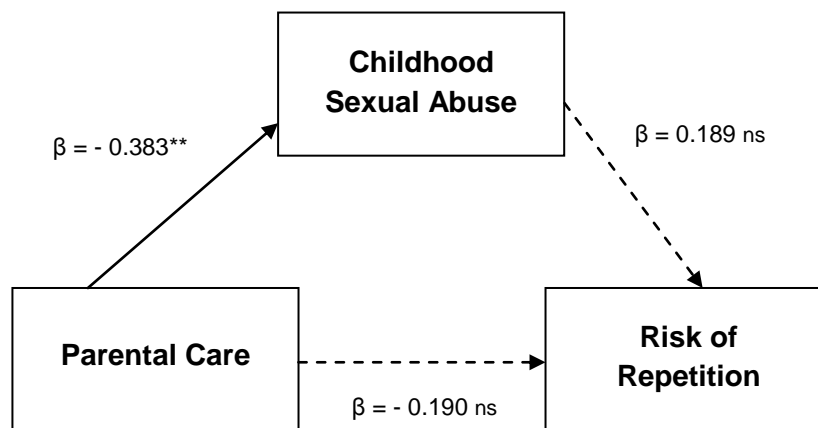


Figure 5. Standardised β coefficients of the pathways between parental care, childhood sexual abuse and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

4.5.3 Mediation model 3: Parental care, childhood emotional abuse and risk of repetition

Childhood emotional abuse was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on childhood emotional abuse $\beta = -0.352$, $p = 0.006$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = -0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and childhood emotional abuse concurrently. At this point Figure 6 shows that childhood emotional abuse maintained significance with a standardised beta of $\beta = 0.425$, $p = 0.001$, whereas the pathway between parental care and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = -0.113$. Therefore a mediating relationship was found.

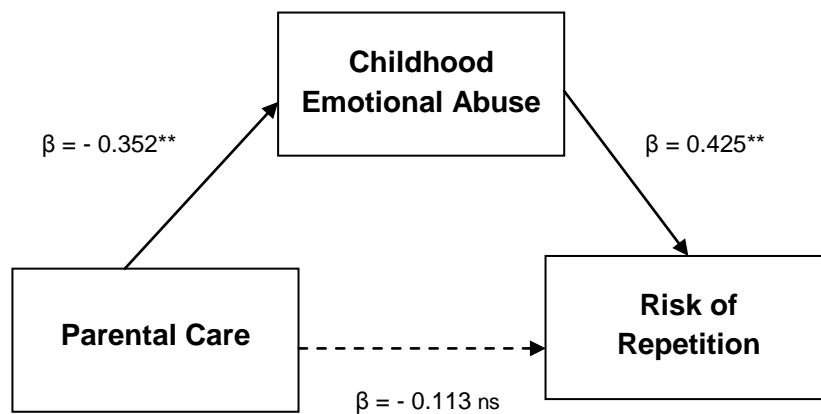


Figure 6. Standardised β coefficients of the pathways between parental care, childhood emotional abuse and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

4.5.4 Mediation model 4: Parental care, emotion regulation strategy REQ- external functional and risk of repetition.

REQ-external functional emotional regulation strategy was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on REQ-external functional $\beta = 0.405$, $p = 0.001$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = - 0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and REQ-external functional concurrently. At this node Figure 7 shows that REQ-external functional emotional regulation strategy maintained significance with a standardised beta of $\beta = -0.409$, $p = 0.002$, whereas the pathway between parental care and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = - 0.096$. Therefore a mediating relationship was found.

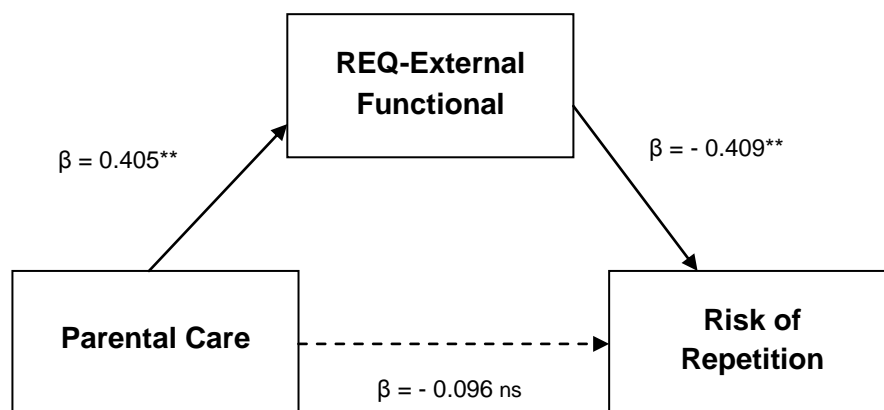


Figure 7. Standardised β coefficients of the pathways between parental care, emotion regulation strategy REQ-external functional and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

4.5.5 Mediation model 5: Childhood physical abuse, emotion regulation strategy (REQ-IF) and risk of repetition

REQ-internal functional emotional regulation strategy was regressed onto childhood physical abuse and the standardised beta coefficient showed that childhood physical abuse had a significant affect on REQ-internal functional $\beta = -0.320$, $p = 0.013$. Risk of repetition was then regressed onto childhood physical abuse and standardised beta weights revealed that childhood physical abuse had a significant affect on risk of repetition $\beta = -0.315$, $p = 0.014$. The final phase involved the mediation process where risk of repetition was regressed onto childhood physical abuse and REQ-internal functional concurrently. At this stage Figure 8 shows that REQ-internal functional emotional regulation strategy maintained significance with a standardised beta of $\beta = -0.418$, $p = 0.001$, whereas the pathway between childhood physical abuse and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = -0.181$. Therefore a mediating relationship was found.

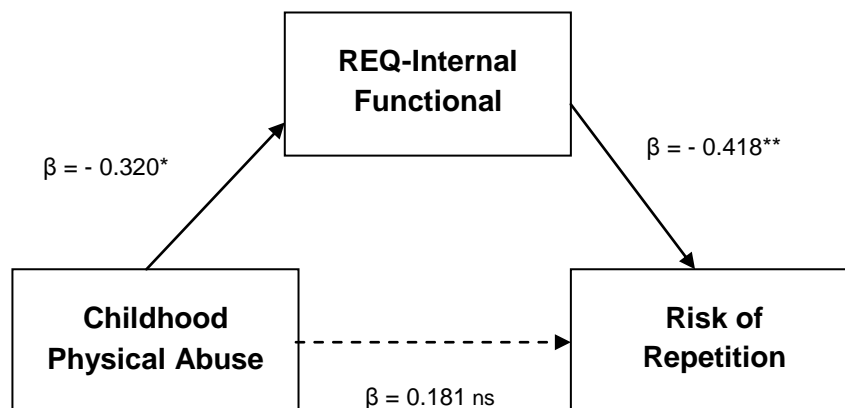


Figure 8. Standardised β coefficients of the pathways between parental care, emotion regulation strategy REQ-internal functional and risk of repetition $^*p<0.05$, $^{}p<0.01$, ns = not significant.**

CHAPTER 5: DISCUSSION

5.1 Hypothesis 1: Main research hypothesis – Mediation models.

As previously discussed there is a wealth of research investigating the associations between childhood abuse and subsequent suicidal behaviour in adulthood. There is also a large body of research examining the associations between poor parental bonding with childhood abuse and suicidal behaviour in adulthood. Furthermore, research has also looked at the relationship between poor attachment or parental bonding with the development of emotion regulation skills and also the association between childhood abuse and the ability to regulate emotions. The majority of this research has been carried out with clinical populations, mainly presenting with psychological or behavioural problems such as mood disorders (Alvarez *et al*, 2011; Zlotnick *et al*, 2000) psychosis (Livingstone *et al*, 2009) substance misuse (Evren & Evren, 2005), suicidal behaviour (Hawton & Fagg, 1992), deliberate self-harm (Fliege *et al*, 2008) or student populations (Gratz & Roemer, 2004; Wichstrom, 2000). Therefore research investigating these variables has built up evidence indicating that significant associations exist between these factors. However, research to date has not investigated these factors as playing potential mediating roles with adults engaging in suicidal behaviour. Rather the focus has been on looking at mediating factors such as low self-esteem and helplessness (Silove *et al*, 1987), adult affective symptoms (Rodgers 1996a, 1996b), coping resources (Matheson, 2005), psychopathology (Molnar *et al*, 2001) and early maladaptive schemas (Dale *et al*, 2010). Therefore, in light of the gap in the literature this study aimed to answer the following main research question: Does childhood maltreatment and emotion

dysregulation play a mediating role between parental bonding and suicidal behaviour in adulthood? Before discussing the outcomes of the mediation models it is important to note that due to the methodological and statistical limitations of this study the findings need to be considered with caution.

The current study found that childhood emotional abuse mediated the relationship between parental care and risk of repeating suicidal behaviour. This finding demonstrates the oblique influence of negative childhood experiences on suicidal behaviour in adulthood. This discovery is consistent with the literature suggesting that childhood abuse plays a direct and independent role to long-term psychosocial functioning in adulthood (Boney-McCoy & Finkelhor, 1998). However, these assertions have been specifically related to childhood sexual abuse and therefore the independent role of other forms of childhood maltreatment have not been as extensively researched and therefore known. Hence this preliminary result could provide a new and alternative slant to considering the contribution and process involved between other forms of childhood maltreatment and parental bonding to suicidal behaviour in adulthood. Therefore, this finding places an emphasis on the importance of considering the long-term impact of childhood emotional abuse on adult suicidal behaviour, particularly risk of repeating suicidal behaviour. This outcome also suggests that the role of childhood abuse in general could be reconsidered from a mere two way relationship and rather thought of as a direct mediating factor itself. Having said this, a study by Higgins *et al.* (2003) tested the mediating role of total childhood abuse (physical, sexual and psychological) and did not find this to be a significant

mediator between family environment and adult adjustment. Instead Higgins *et al.* (2003) found familial factors to play a mediating role between childhood abuse and adult long-term adjustment. However, the Higgins *et al.* (2003) study was based on a non-suicidal group. This is the first study to find emotional abuse as a significant mediating factor within the suicidal behaviour population. Therefore this finding suggests that childhood emotional abuse is an important aspect of and a risk factor for suicidal behaviour particularly risk of repeating suicidal behaviour. Furthermore this finding is also important considering the limited research investigating the long-term impact of emotional abuse and therefore this finding further enhances the literature. However, because this is a new finding amongst the suicidal behaviour literature, further research needs to be carried out in order to understand the long-term role of childhood emotional abuse within the suicidal behaviour population.

This study also found the REQ-External Functional emotion regulation strategy to be a significant mediator between parental care and risk of repeating suicidal behaviour. This finding demonstrates that parental care is a strong predictor of developing emotion regulation strategies and a lack of external functional emotion regulation strategies results in risk of repeating suicidal behaviour. In support of this finding Sim *et al.* (2009) found that maladaptive emotion regulation skills mediated the relationship between adolescents from an invalidating family environment (rejecting or dismissive) and deliberate self-harm. A study by Shipman *et al.*, (2005) found that children experiencing neglectful parenting (parental unavailability physical and emotional) displayed a lack of emotional

understanding; less functional emotion regulation strategies; low emotional self-awareness and an inability to cope with emotional distress. Other studies focusing on parental care such as Hildyard and Wolfe (2002) reported that physically and emotionally neglected infants compared to non-maltreated and abused children displayed difficulties in ‘...coping, personality development and emotion regulation’ (p.685). A study by Erickson (as cited in Hildyard & Wolfe, 2002) found that neglected children scored the lowest on self-esteem and were observed as the ‘...most unhappy group of children’ (p. 685). This study also found that neglected children exhibit behaviours such as ‘...tics, tantrums, stealing, soiling, frequent physical complaints, self punishing behaviours and clinginess’ (Hildyard & Wolfe, 2002, P.685). Therefore parental care and negative family environments directly shape children’s emotionality, emotional competence and emotional regulation skills (Morris *et al.*, 2007).

As previously outlined there is a large body of research demonstrating the long-term effects of poor attachment and parental bonding on adult psychosocial functioning. A review by Maughan and McCarthy (1997) highlights extensive research reporting the long-term effects and risk factors of poor parental care and abusive family environments on subsequent adult functioning such as depression, anxiety, eating disorders, physical health problems, alcohol problems and substance misuse and suicidal behaviour. As previously outlined these damaging behaviours could be considered as engaging in dysfunctional emotion regulation strategies to manage emotional distress. Therefore the finding of this significant mediating model possibly further highlights the importance of the impact parental

care can have on the development of functional or dysfunctional emotion regulation strategies and subsequent adult wellbeing. Furthermore, this finding adds to this body of research, particularly when considering a lack of external functional emotion regulation skills in relation to adult suicidal behaviour.

The study also found the REQ-Internal Functional emotion regulation strategy to be a significant mediator between childhood physical abuse and risk of repeating suicidal behaviour. This finding demonstrates that childhood physical abuse is a strong predictor of inhibiting the development of functional emotion regulation strategies and a lack of internal functional emotion regulation strategies results in a higher risk of repeating suicidal behaviour. In support of this finding Burns *et al.* (2010) found that emotion dysregulation partially mediated the relationship between childhood physical abuse and post traumatic stress. Furthermore, Cloitre *et al.* (2008) also found that dysfunctional emotion regulation played a mediating role between childhood abuse and post traumatic stress disorder. Paivio and McCulloch (2004) discovered that problems in emotion regulation mediated the relationship between childhood abuse and self-injury. Milligan and Andrews (2005) found that bodily shame partially mediated the relationship between child sexual abuse and self-harming behaviour. Muehlenkamp *et al.* (2010) found that adults who had experienced childhood abuse and engaged in self-harming behaviour also reported problems in regulating emotions. Therefore the findings of this study adds to the literature suggesting that experiences of childhood physical abuse result in a lack of internal functional emotion regulation strategies which subsequently results in the risk of repeating suicidal behaviour.

The two significant internal and external functional emotion regulation mediational models could be considered as distinct and novel from the other mediating models investigating emotion regulation. This is because no other study to date has investigated emotion regulation as a mediating factor within a suicidal behaviour sample. Therefore, this study provides preliminary evidence that a lack of internal and external functional emotion regulation strategies could be risk factors to people being at risk of repeating suicidal behaviour. Therefore difficulties in regulating emotions is an important factor in further understanding suicidal behaviour in adults, particularly with individuals with experiences of low parental care and childhood physical abuse. Having said this, the conceptualisation of emotion regulation and the long-term effects of childhood abuse are incredibly complex, particularly in relation to composite psychological problems such as suicidal behaviour. Therefore the findings of these significant mediation models only provide a small and relatively unsophisticated insight into what is a more multifarious human experience. Therefore further research using more complex mediation models such as structured equation modelling needs to take place to further understand the direct and indirect effects of low parental care, childhood emotional and physical abuse and internal and external functional emotion regulation strategies. Therefore the significant mediation effects found in this study need to be considered with caution as these findings may be more meaningful within a multiple mediator scenario.

Converse to other research (Boney-McCoy & Finkelhor, 1998; Molnar *et al*, 2001) and aspects of the main research hypothesis; childhood sexual and physical

abuse did not play a mediating role between parental care and risk of repeating suicidal behaviour. In fact both mediational models, parental care and childhood physical and sexual abuse respectively lost significance i.e. they cancelled each other out. Therefore no one strong predictor or mediator variable could explain the resulting suicidal behaviour, particularly risk of repetition. These two mediational models show that there is a significant association between low parental care and childhood physical and sexual abuse. Therefore the findings of these two mediational models suggest that the experience of low parental care and childhood physical and sexual abuse may be measuring or tapping into the same psychological construct. In a study by Widom (as cited in Jasinski *et al*, 2000) investigating the association between childhood maltreatment and alcohol abuse in adulthood, they did not find a significant relationship between childhood sexual and physical maltreatment and alcohol abuse for men. Their explanation for this was based on a term called ‘saturation effect’ which could be applied to this particular finding in the current study (Widom as cited in Jasinski *et al*, 2000, p.1063). Therefore because the nature of low parental care involving a lack of love, warmth, affection and basic nurture can be associated with the experience of childhood sexual and physical abuse, it could be argued that childhood sexual and physical abuse may not add to or differentiate from low parental care when considering risk of repeating suicidal behaviour in adulthood.

However ‘saturation effect’ (Widom as cited in Jasinski *et al*, 2000, p.1063) does not unequivocally explain the non-significant mediational models and offers a somewhat reductionist view of the associations between low parental care,

experiences of childhood sexual and physical abuse and risk of repeating suicidal behaviour in adulthood. As previously discussed; the long-term effects and roles that childhood sexual and physical abuse and poor parental care could have on suicidal behaviour in adulthood are complicated. Furthermore the association between poor parental care and experiences of childhood sexual and physical abuse are multifaceted. Therefore these non-significant findings could be due to other indirect variables affecting the non-significant relationships found in these mediational models such as negative schemas (Dale *et al*, 2010); interpersonal difficulties (Davis & Petretic-Jackson, 2000); low self-esteem (Mullen *et al*, 1996); trauma symptoms (Rodriguez *et al*, 1996); substance misuse (Roy, 2004), emotional and/or behavioural difficulties (Silverman as cited in O’Riordan & Arensman, 2007) and depression (Zlotnick *et al*, 2001) to name a few. Therefore these non-significant findings highlight the statistical weakness of the mediational model used in this study which only allows for one intervening variable to be investigated rather than several possible mediators. This is further highlighted by the significant mediation of low internal functional emotion regulation strategies between childhood physical abuse and risk of repetition. Furthermore, these non-significant mediation models highlight the importance and potential mechanism of childhood emotional abuse between low parental care and long term psychosocial functioning in adulthood such as risk of repeating suicidal behaviour. This finding may therefore suggest that the experience of childhood emotional abuse may be different to the experience of childhood physical and sexual abuse (Burns *et al*, 2010). Or alternatively that the pathway involving child sexual and physical abuse leading to risk of repeating suicidal behaviour in adulthood may be different to

emotional abuse due to other indirect variables discussed above. This is therefore an area that needs further conceptual understanding and investigating particularly by utilising mediational models that allow more than one indirect variable to be tested. Overall therefore, the findings of the mediational models add to the body of literature in this area. However, these results need to be considered with caution due to the statistical limitations discussed above and the methodological limitations of this study which are further discussed in section 5.4.

5.1.1 Theoretical conceptualisation of mediational models

From a developmental perspective, attachment theory supports and provides a framework for the mediational models found in this study. As previously outlined the essence of attachment theory is about the child-caregiver bond and how this shapes and organises the internal and external sense of self throughout the life-cycle (Holmes, 1993). Therefore, a child growing up with an attachment figure who is abusive and hostile can create long-term vulnerability for that child such as engaging in suicidal behaviour. This is because the child has internalised the negative actions of the caregiver and formed a negative sense of self as bad, defective or disgusting (Fonagy, 2006; Riggs, 2010; Yates, 2004). In addition to this the child's caregiver has not helped them to make sense of their experiences, emotions and external world. Therefore the children are unable to regulate their emotional state or trust others for help or support (Streeck-Fischer & Van der Kolk, 2000). As a result such children learn to dismiss and discount their emotions and thoughts (Crittenden as cited in Streeck-Fischer & Van der Kolk, 2000). This directly impacts on their ability to regulate their emotions which

involves the ability to recognise, accept and appraise emotions and then to modify or respond to them accordingly (Gross & John, 2003; Phillips & Power, 2007; Thompson, 1994). Therefore, these early experiences set the template for further developing coping responses and resources to later stressful or traumatic life events. For example, Fonagy (2006) states that when feelings of badness which have been internalised as the self actually being bad are brought up into conscious awareness, the self feels attacked from within and is subsequently overwhelmed by these feelings of badness. Therefore because the individual is unable to regulate their emotions, engaging in suicidal behaviour serves as a way of ending the self and therefore the emotion (Fonagy, 2006).

A study by Dale *et al.* (2010) found that early maladaptive schemas mediated the relationship between parental care and risk of repeating suicidal behaviour. The Dale *et al.*, (2010) study found the social alienation schema to be a mediating factor between parental care and risk of repeating suicidal behaviour. This finding further supports the emotion regulation mediation models found in this current study, highlighting the inability of individuals engaging in suicidal behaviour to regulate their emotions by utilising internal or external functional emotion regulation strategies. Therefore, emotion regulation or dysregulation could be the mechanism that associates parental bonding and childhood abuse to suicidal behaviour in adulthood. This mechanism is also found within the attachment and general developmental process where emotions interpret present situations by connecting present to past experiences (Streeck-Fischer & Van der Kolk, 2000).

5.2 Secondary Research Hypotheses

5.2.1 Hypothesis 2 – Childhood abuse correlations to suicidal behaviour

It was hypothesised that childhood abuse would be associated with suicidal intent. This study found that suicidal intent was significantly associated with sexual harassment and sexual abuse variables. It was also hypothesised that childhood abuse would be associated with risk of repeating suicidal behaviour. This study found that childhood emotional abuse and childhood sexual abuse were significantly associated with risk of repeating suicidal behaviour.

These findings were mainly consistent with the outcomes of the systematic review incorporated into this thesis. The systematic review reported seven studies that found a significant association between both childhood sexual abuse and emotional abuse (Coll *et al*, 2001; Forman *et al*, 2004; Kaslow *et al*, 2000; Orbach *et al*, 2006; Osvath *et al*, 2004; Sarchiapone *et al*, 2009; Sfoggia *et al*, 2008; Ystgaard *et al*, 2004) with adult suicidal behaviour. The systematic review also found five studies that associated childhood physical abuse with adult suicidal behaviour (Coll *et al*, 2001; Kaslow *et al*, 2000; Orbach *et al*, 2006; Osvath *et al*, 2004; Sarchiapone *et al*, 2009; Sfoggia *et al* 2008; Ystgaard *et al*, 2004). Two studies in the systematic review also found that childhood sexual abuse and emotional abuse was associated with repeating suicidal behaviour (Forman *et al*, 2004; Ystgaard *et al*, 2004). Therefore the significant correlations found in this current study are consistent with the large body of research investigating these associations as detailed in the systematic review. However,

this study did not find any significant associations between childhood emotional neglect and suicidal behaviour. Although this finding deviates from some of the research in this area, this finding is also consistent with other studies. For example, Ystgaard *et al.* (2004) also found a non-significant association between neglect and suicidal behaviour.

In support of the result between childhood sexual abuse and sexual harassment with suicidal intent a study by Bebbington *et al.* (2009) found that a history of sexual abuse was strongly correlated with adults engaging in suicidal behaviour, particularly suicidal intent. Another study by Beckinsale *et al.* (1999) also found that experiences of sexual abuse in adolescents increased the risk of engaging in suicidal behaviour, particularly suicidal intent. Both of these studies found that depressed mood played a strong role in increasing the level of suicidal intent. However, a study by Haw and Hawton (2008) did not find as strong a correlation between number of life problems including history of child sexual abuse and suicidal intent. Haw and Hawton (2008) suggest that life events were considered as chronic problems rather than acute life events. However, psychiatric problems and social isolation were strongly associated with suicidal intent. Therefore from these research findings including the current study, it could be that the individual's perception and meaning of their experience of child sexual abuse increases the degree of suicidal intent. Furthermore, depressed mood appeared to play a possible mediating role (Bebbington *et al.* 2009). Therefore as previously discussed there is considerable variation in amongst the trauma literature when considering different forms of childhood abuse and subsequent suicidal behaviour.

One explanation is that the underlying process and mechanisms are not fully understood and need further investigating (Coll *et al.*, 2001).

5.2.2 Hypothesis 3 – Parental bonding correlations to suicidal behaviour

It was hypothesised that parental bonding constructs care and control would be significantly correlated with suicidal behaviour constructs suicidal intent and risk of repetition. This study found that low parental care was significantly associated with risk of repeating suicidal behaviour. However, there was no significant association between parental care and suicidal intent and parental control and suicidal intent and risk of repetition.

In support of the significant finding a study by Van der Kolk *et al.* (1991) found that individuals who engaged in suicidal behaviour had experienced insecure attachments during childhood and that these experiences maintained these self destructive behaviours. A study by Dale *et al.* (2010) also found that adults with experiences of low parental care were significantly associated with risk of repeating suicidal behaviour. However, this study also found perceived experiences of high parental control to also be associated with risk of repeating suicidal behaviour. This particular finding from the current study adds to and supports the body of attachment and parental bonding literature. This result suggests that the parent-child bond is crucial in the developmental trajectory of the child and that poor parental bonds involving low care can create vulnerability

to long-term psychological, emotional and behavioural problems (Van der Kolk, 2007).

The non-significant result between parental control and risk of repeating suicidal behaviour is not in line with other research which has shown that parental control is a factor in those engaging in suicidal behaviour (Parker, 1998). This non-significant outcome could just be a reflection of this particular sample, where lack of care was the primary dimension. Indeed, previous research has suggested that low parental care is mainly associated with psychological dysfunction rather than overly controlling parental experiences (Deas *et al*, 2010). Therefore it could be that this particular group are experiencing more psychological dysfunction and therefore elevating the low parental care score.

The non-suicidal association between parental care and control to suicidal intent could be again related to the perceived severity of parental experiences. Similar to the previous discussion on child sexual abuse and suicidal intent, it could be that the retrospective perception of parental experiences are not considered acute enough to influence degree of suicidal intent. Or, this particular sample were themselves not presenting with high suicidal intent. A study by Pierce (1977) demonstrated that the method employed to engage in suicidal behaviour affected how the suicide intent scale was rated. Pierce (1977) showed that those engaging in overdose/self-poisoning behaviour did not score as high on this scale than those with other methods of engaging in suicidal behaviour. This finding was also supported by Harriss *et al.* (2005) where they found those engaging in

overdose/self-poisoning suicidal behaviour reported a lower degree of suicidal intent than those engaging in other suicidal methods such as jumping, hanging or gunshot (Harris *et al*, 2005). The majority of this sample engaged in self-poisoning suicidal behaviour. Therefore the level of suicidal intent in this sample may not have been severe enough to gain significant associations with parental care and control.

5.2.3 Hypothesis 4 – Emotion regulation correlations with suicidal behaviour

It was hypothesised that dysfunctional emotion regulation would be positively correlated and functional emotion regulation would be negatively correlated with suicidal intent and risk of repetition. This study found that internal dysfunctional (positive correlation), external functional (negative correlation) and expressive suppression (positive correlation) to be significantly associated with suicidal intent. The study also found internal dysfunctional (positive correlation), internal functional (negative correlation), external functional (negative correlation), cognitive reappraisal (negative correlation) and expressive suppression (positive correlation) to be significantly correlated with risk of repeating suicidal behaviour.

These findings mean that dysfunctional emotion regulation strategies were significantly associated with suicidal intent and risk of repeating suicidal behaviour. In support of these findings research investigating emotional dysfunction in people presenting with a range of psychological problems such as

borderline personality disorder (Linehan *et al*, 1994), post traumatic stress disorder (Burns *et al*, 2010; Yates, 2004), childhood trauma (Paivio & McCulloch, 2004), substance abuse (Evren & Evren, 2005), adult interpersonal relationships (Riggs, 2010) and bulimia nervosa (Muehlenkamp *et al*, 2009) are also known to engage in suicidal or self-harming behaviour. Therefore this particular result from this current study is in line with a large body of research. However, the majority of the research investigating problems with emotion regulation is mainly with people engaging in deliberate self-harm (Klonsky & Muehlenkamp, 2007). This finding also extends the literature in this area.

5.2.4 Hypothesis 5 - Depression and anxiety correlations to suicidal behaviour

It was hypothesised that depression and anxiety would be positively correlated with suicidal intent and risk of repeating suicidal behaviour. This study found that only depression was significantly associated with suicidal intent and risk of repeating suicidal behaviour. However anxiety was not significantly associated with suicidal behaviour constructs.

There is a vast body of research that has found strong associations between depression and suicidal behaviour in both adults and adolescents (Beck *et al*, 1975; Brodsky *et al*, 2001; Carlson *et al*, 1982; Goldney *et al*, 1994; Lonnqvist, 2000). Therefore, this particular finding adds to this body of research.

The association between anxiety and suicidal behaviour has not been as extensively researched as the association between depression and suicidal behaviour. However, research has shown that anxiety is significantly associated with suicidal behaviour (Bolton *et al*, 2007; Sareen *et al*, 2005). Therefore, the results found in this study deviate from the literature. A possible explanation is that this particular sample were more depressed than anxious and therefore anxiety was not rated as highly. It could also be that since this group did not present with high levels of suicidal intent, that this may have affected the anxiety score. Therefore, the possible relationship between anxiety and suicidal intent needs to be further researched.

5.3 Clinical Implications

The findings of this study show the importance of childhood emotional abuse and dysfunctional emotion regulation strategies in people engaging in suicidal behaviour. Furthermore, the study has shown that childhood abuse also plays an active role within the process leading to suicidal behaviour and should not be just considered as a historical and environmental variable. The findings of this study will further enhance clinical practice at both assessment and treatment. There is already an established awareness amongst clinicians regarding the role of childhood sexual and physical abuse and poor attachment has on long-term psychosocial functioning. The findings of this study show that emotional abuse needs to be considered a serious risk factor to long-term adult functioning as well. Furthermore, the majority of clients that are referred to psychological services after engaging in suicidal behaviour come with a medical/psychiatric diagnosis or

label which is subsequently treated. However, the findings of this study show that dysfunctional emotion regulation is a key risk factor to behaviour such as suicide and repeating suicide. Therefore this needs to be a focal point of assessment for Liaison Psychiatry staff who carry out the initial assessment after medical treatment in A&E. Furthermore, emotional abuse with regards to suicidal behaviour for both adults and adolescents also need to be considered within a developmental framework as part of assessment amongst general mental health staff. Treatments that encompass these factors such as mentalisation based treatment (Allen & Fonagy, 2006; Fonagy *et al*, 2004) already exist, however they are not as established in mental health settings as other psychological treatments such as cognitive behavioural therapy.

The findings of this study also inform early prevention work by highlighting the mediating role of dysfunctional emotion regulation between parental care and long-term psychosocial functioning. Also, by highlighting the particular role childhood physical abuse, emotion dysregulation and subsequent suicidal behaviour involving risk of repetition.

5.4 Study Limitations

Although the study draws attention to the mediating roles of childhood emotional abuse and emotion dysregulation, these are also early findings in this area and therefore need to be considered within the study's methodological and statistical limitations hence reducing generalisation of the results.

This was a cross-sectional study and therefore an understanding of definite causal factors relating to the long-term influence of childhood abuse, poor parental bonding and the ability/inability to regulate emotions on suicidal behaviour are limited. The retrospective and self-report nature of the study i.e. using self-report questionnaires to assess childhood abuse, parental bonding and emotion regulation may have prejudiced results through recall bias and autobiographical memory distortion. Therefore these investigated factors may benefit from further examination within a longitudinal context. Although this study aimed to reduce sampling bias by reporting a participation rate of 87%, comparisons between participants and non-participants was not measured. Therefore, those who chose not to participate or were excluded from the study may have answered the questions differently and so potentially changing the results. For example, participants who had absconded or were under police control. Therefore non-respondent bias cannot be ruled out. The context in which the data was collected in i.e. participants presenting to accident and emergency following suicidal behaviour may have negatively biased self reports. This bias may have occurred through participants experiencing elevated levels of emotional or psychological distress and thus potentially under or over reporting their childhood experiences. However, this study aimed to minimise this confounding factor by excluding participants exhibiting high levels of distress, checking with the participants if they were feeling upset and also allowing time for the participants to ask questions prior to and following data collection. The different forms of childhood abuse examined were not isolated or 'pure' experiences. There was overlap between the different forms of abuse which therefore may have been influencing

each other. However, McGee (as cited in Higgins *et al*, 2003) suggests that ‘pure’ childhood abuse experiences rarely exist and therefore there should be a focus on investigating multiple types of abuse and how these influence and moderate each other when considering long-term adult functioning. This sample did not score highly on the suicidal intent scale and therefore these factors need to be re-investigated with people presenting with a higher degree of suicidal intent. Adult re-victimisation was not controlled for and may have potentially confounded the results. Therefore, the study cannot say for sure if the results found were purely related to childhood experiences and so only tentative conclusions can be drawn from the results. This was a within group design with no comparison or control group hence the findings of this study cannot be generalised to other populations as the results of this study may be specific to this sample. The relatively small sample size in addition to the methodological limitations discussed above further reduces the generalisability of these findings because the small sample of this study maybe less representative of the suicidal behaviour population. Ethnicity of the sample was not measured. However the majority of the sample were Caucasian and therefore further limiting the generalisability of the results. Statistically this study did not employ a complex structured equation model to test multiple potential mediating variables. Therefore although single intervening factors such as childhood emotional abuse and low functional emotion regulation strategies were found to be significant, the findings were limited to this rather than conceptualising them in a larger more complex model. Therefore further generalisations of these findings are limited. Future research needs to employ more complex mediation models to understand the long-term interacting roles of

childhood abuse, parental bonding and emotion regulation strategies on suicidal behaviour particularly to risk of repetition.

However, despite these limitations this study has also shown many strengths. It has shown that experiences of childhood abuse are common in this population which is also in keeping with the literature. The study supports early prevention work by highlighting the potential long-term roles that childhood abuse can have on adult psychosocial functioning such as engaging in suicidal behaviour and risk of repeating suicidal behaviour. The overall strength of this study is that the mediation models provide new considerations to childhood abuse and emotion regulation literature that needs further understanding and researching. Therefore, this study further enhances the literature by looking at these factors within suicidal behaviour particularly in relation to risk of repetition.

5.5 Future Research

Further research needs to be carried out involving childhood emotional abuse and dysfunctional emotion regulation strategies with other clinical and general populations to enhance generalisability. Future research needs to control for methodological limitations found in this study such as controlling for re-victimisation or incorporate adult re-victimisation to see what influence this has on the ability to regulate emotions and psychosocial functioning. Overall, a more complex model, using more statistically robust mediational models needs to be considered within a developmental and social framework bringing together: childhood abuse, attachment, emotion regulation, cognitions, family environment,

interpersonal functioning, as well as wider social aspects such as economic deprivation, social class, social impact of gender differences, race, ethnicity, religion and other wider social beliefs.

5.6 Summary and Conclusions

To conclude, the preliminary findings of this study suggest that childhood emotional abuse and dysfunctional emotion regulation play a crucial role in further understanding those who engage in suicidal behaviour. Low parental care was identified as a significant factor associated with childhood abuse, emotion dysregulation and risk of repeating suicidal behaviour. Therefore, emotions and emotion regulation within a developmental framework are important when considering long-term adult psychosocial functioning. These findings enhance the literature in this area, however, they should also be considered with caution due to methodological and statistical limitations highlighted above which also limited generalisability of the findings beyond the sample investigated.

CHAPTER 6: ARTICLE

The Mediating Roles of Childhood Abuse and Emotion Regulation between Parental Care and the Risk of Repeating Suicidal Behaviour

Abstract

Objectives: To find out if childhood abuse and dysfunctional emotion regulation strategies play a mediating role between parental bonding and risk of repeating suicidal behaviour.

Methods: This study involved sixty participants from a suicidal behaviour sample presenting at an Accident and Emergency department. Measures assessing childhood abuse, emotion regulation, parental bonding and risk of repeating suicidal behaviour were completed.

Results: Childhood emotional abuse and a lack of external and internal functional strategies were found to significantly mediate the relationship between low parental care, childhood physical abuse and risk of repeating suicidal behaviour.

Conclusion: Preliminary findings of this study suggest that childhood emotional abuse and dysfunctional emotion regulation plays a crucial role in further understanding those who engage in and repeat suicidal behaviour.

Key words: childhood abuse, suicidal behaviour, parental bonding, emotion regulation

Introduction

There are approximately a million deaths per year world wide as a result of suicide (Hawton & Heeringen, 2009). The Office for National Statistics (2011) reported that in 2009 5,675 people committed suicide in the UK. The General Register Office for Scotland (2010) reported that in 2009 746 people aged 14-85+ committed suicide. Out of these, 682 people were aged between 16-65. Approximately 241 people in 2009 poisoned themselves, 330 people hung, strangled or suffocated themselves, 45 people drowned themselves, 10 people used firearms or explosives, 64 people jumped and 56 people's deaths were undetermined (www.gro-scotland.gov.uk). This study understands suicidal behaviour as:

‘A deliberate act of actual or potential harm to the self, undertaken with a degree of suicidal intent with non-fatal outcome regardless of purpose or method’ (Dale *et al*, 2010, p.311).

Method of engaging in suicidal behaviour and number of previous attempts have been associated with risk of repeating suicidal behaviour (Gunnell & Lewis, 2005; Reulbach & Bleich, 2008). However research has found that individuals engaging in deliberate self-harm are at greater risk of repeating suicidal behaviour. A systematic review by Owens *et al*. (2002) found that a quarter of patients attending accident and emergency due to deliberate self-harm carried on repeating this behaviour and 1.8% died by the act of suicide (Owens *et al*, 2002). Literature taking a life course perspective of suicidal behaviour and risk of repetition has found that early childhood experiences such as childhood abuse, poor parental bonds involving low care, difficulties in help-seeking behaviour have also been

associated with risk of repeating suicidal behaviour (Dale *et al*, 2010; Gunnell & Lewis, 2005). Research has suggested that these factors increase the risk of engaging in and repeating suicidal behaviour over and above psychological disorders (Gunnell & Lewis, 2005).

The association between experiencing childhood abuse and suicidal behaviour in adulthood is considerable and there has been extensive research investigating this relationship in a range of populations. A recent study by the NSPCC (2011) looking at child cruelty in the UK found that young adults who were severely abused and neglected as children were nine times more likely to attempt suicide compared to young adults who had not had these experiences. A study by Butchart and Harvey (2006) for the World Health Organisation (WHO) found that exposure to childhood maltreatment led to those individuals engaging in risk-taking behaviour in adulthood such as alcohol misuse, drug problems, depression, high risk sexual behaviours as well as being vulnerable to further bullying and abuse. These risky behaviours were found to result in a range of health problems including engaging in suicidal behaviour. Therefore childhood abuse carries extensive long-term physical and mental health problems such as poorer emotional wellbeing which impacts on the individual and society (Butchart & Harvey, 2006). A systematic review by Santa-Mina and Gallop (1998) investigated clinical and community populations and found strong evidence that childhood sexual and physical abuse was also related to suicidal behaviour. A general population longitudinal study carried out over 23 years by Fergusson *et al*. (2008) found that child sexual abuse had longer-term effects compared to child

physical abuse and that child sexual abuse was a stronger contributing factor towards adults attempting suicide. Research into childhood emotional abuse has not been as extensive as the research into physical and sexual abuse. However, literature into emotional abuse indicates that it may play a stronger role in the development of long-term psychological problems and functioning such as suicidal behaviour than other types of abuse (Kaplan *et al*, 1999). Another general population study by Mullen *et al*. (1996) found that adults with experiences of childhood emotional abuse were twelve times more likely to attempt suicide compared to adults with experiences of childhood physical abuse who were five times more likely to engage in suicidal behaviour. Andrews *et al*. (2004) carried out a meta-analysis for the WHO and found a strong relationship between child sexual abuse and suicidal behaviour in adulthood. Research has also shown that more experiences of childhood physical, sexual and emotional abuse are also associated with risk of repeating suicidal behaviour (Forman *et al*, 2004; Ystgaard *et al*, 2004). However, the Forman *et al*. (2004) study did not show a significant difference in the association between child sexual abuse reports and multiple or single suicide attempters.

Although there is this large body of evidence reporting significant associations between childhood abuse and suicidal behaviour including risk of repetition in adulthood, a firm causal relationship has not been established. In fact there is variability between experiences of childhood abuse and the development of later psychological and behavioural problems (Davis & Petretic-Jackson, 2000). The main reason suggested for this is that these associations may actually be mediated

by other variables such as family background involving attachment/parental bonding (Glaser, 2002; Hildyard & Wolfe, 2002; Streeck-Fischer & Van der Kolk, 2000; Van der Kolk, 2005) and the ability to regulate emotions (Aldao *et al*, 2010).

Research into attachment suggests that pivotal to the child-parent bond is the degree of care and control provided by the parent figure (Baumrind, 1971; Bogaerts *et al*, 2005; Nickell *et al*, 2002). Parker *et al*. (1979) developed the Parental Bonding Instrument (PBI) as a means of assessing these two parental constructs. Research has shown that people engaging in suicidal behaviour and suicidal ideation display fearful, preoccupied and insecure attachments (Armsden *et al*, 1990; Lessard *et al*, 1998). This further suggests and supports the association found between parental bonding and suicidal behaviour.

Some studies have investigated the association between parental bonding and adult suicidal behaviour using the PBI. A study by Heider *et al* (2007) found that low maternal and paternal care was associated with suicidal behaviour. Dale *et al*. (2010) found that low parental care and high parental control was associated with risk of repeating suicidal behaviour. This study also found that negative early maladaptive schemas such as defectiveness/shame mediated this relationship. Enns *et al*. (2006) found that low maternal care was associated with suicidal ideation and attempts. However, this study found different forms of childhood abuse to be stronger predictors of suicidal behaviour in adults such as physical and emotional abuse and neglect than parental bonding constructs. Mullen *et al*.

(1993) found that family dysfunction in relation to low care and high control also increased odds of suicidal behaviour in conjunction with experiences of childhood sexual abuse. Beautrais (2002) found that low paternal care and high paternal control was associated with suicidal behaviour in older adults who had also experienced child sexual abuse. A large number of studies investigating the association between parental bonding and suicidal behaviour have also been conducted with adolescents. This research has also found significant associations between parental bonding and suicidal behaviour. For example, Tousignant *et al.* (1993) found that low maternal and paternal care were associated with suicidal behaviour. Beautrais *et al.* (1996) also found low parental care to be associated with, and increased the odds of, suicidal behaviour in adolescents. The findings from this research suggest that parental care and control factors are associated with subsequent suicidal behaviour in adulthood. This research also supports findings that other early childhood factors such as abuse also play a role along with parental bonding in suicidal behaviour. Research has also shown that the role of childhood abuse in relation to long-term psychological and behavioural problems in adulthood appears to be quite complex. Therefore childhood abuse should not be considered in just a two way relationship, but also further researched as a mediating variable itself. This view taps into the debate and literature around child abuse and family functioning suggesting that child abuse plays an independent role to psychosocial functioning in adulthood (Boney-McCoy & Finkelhor; Higgins *et al.*, 2003).

Studies have shown that negative childhood experiences such as abuse and poor parenting are associated with impulsive behaviour such as deliberate self-harm as a means of coping with stressful life events (Gunnell & Lewis, 2005). As previously mentioned such forms of behaviour increase the risk of engaging in and repeating suicidal behaviour. However the underlying pathways that potentially mediate these associated factors are not fully understood and require further investigation.

Impulsive behaviour is an aspect of dysfunctional emotion regulation. There is no specific definition of emotion regulation; the majority of research in this area recognises Thompson's (1994) definition as a general basis for this construct (Gerow & Kendall, 2002; Morris *et al.*, 2007; Phillips & Power, 2007). This definition is outlined below.

'Emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features to accomplish one's goals.' (Thompson, 1994, pp.27 – 28).

This definition suggests that emotion regulation involves natural internal (intrinsic) and external (extrinsic) processes. Internal processes involve self regulatory factors such as emotional and cognitive appraisal/re-appraisal and interpretation/re-interpretation. (Gerow & Kendall, 2002; Gross and John, 2003; Morris *et al.*, 2007). External processes involve how an individual relates to their environment such as interpersonal relationships with attachment figures and responses to emotions such as ability to express emotions and seeking help to

regulate emotions (Gerow & Kendall, 2002; Morris *et al.*, 2007). Therefore emotion regulation involves the precise ability to recognise, accept, and appraise emotions and then to modify or respond to them accordingly (Gross & John, 2003; Phillips & Power, 2007; Thompson, 1994). Thus emotion regulation can be considered as adaptive or maladaptive (Phillips & Power, 2007). This study therefore understands emotion regulation as an internal and external process related to the ability to employ functional or dysfunctional emotion regulation strategies.

Research is starting to show that emotion dysregulation is correlated with deliberate self-harm (Gratz, 2007). Studies such as Gratz and Roemer (2004) found that deliberate self-harm was related to diminished emotional awareness, lack of clarity and acceptance over emotional responses, limited awareness of how to employ useful emotion regulation strategies and difficulty managing behaviours when experiencing negative emotions. Evren and Evren (2005) also found that adults with childhood physical and sexual abuse histories engaged in deliberate self-harm as a means of regulating and avoiding emotions and were also at higher risk of engaging in suicidal behaviour.

Associations between poor parental bonding, childhood maltreatment, emotion dysregulation and suicidal behaviour have been continually demonstrated in one form or another. However, few factors including these variables have been identified as potential mediators of these associations, particularly with people engaging in suicidal behaviour. Recognising these processes are crucial as this

would inform clinical practice and treatment as to the influence of parental bonding, childhood maltreatment and emotional dysregulation on psychological phenomena including suicidal behaviour. Examining possible mediating factors in this area would also fall in line with The Scottish Government's initiatives to reduce the suicide rate. Research in this area is recommended to aid prevention strategies. Therefore the aim of this study is to answer the following question: Does childhood abuse and emotion dysregulation play a mediating role between parental bonding and risk of repeating suicidal behaviour in adulthood?

Method

Participants

In this study potential participants who were admitted to the Accident and Emergency Short Stay Ward for psychosocial assessment following suicidal behaviour were invited to participate in the current research project. Participants were invited to take part in the study once they had completed their psychosocial assessment and considered appropriate by Liaison Psychiatry. The exclusion criteria which Liaison Psychiatry used to assess and identify potential participants were: Those under 18 and over 65 years old; presenting with psychosis; with a learning disability; with high levels of toxicity or severe medical complications and exhibiting neuropsychological difficulties. Participants were excluded if they exhibited violence, were heavily sedated and therefore not responsive and under police control. Participants were also excluded if they had already participated in the study and therefore each participant was included only once in the study. Sixty

nine individuals were invited to participate and 60 people took part in the study. The response rate for this sample was 87%.

Measures

The Traumatic Experiences Checklist (TEC)

The TEC was initially developed for the purpose of research which aimed to measure the relationships between traumatic experiences, somatoform and dissociation (Nijenhuis, 2004). The TEC is a 29 item self-report questionnaire and was used in this study to measure the reported traumatic experiences of participants. This study focused on questions relating to traumatic emotional, physical and sexual abuse. Each question is answered as yes or no and given a score of 1 if yes and a score of 0 if no. The ages at which these experiences occurred are also reported. The subjective level of impact that each traumatic experience had on the participant was also recorded. The impact level ranged from 1 = none, 2 = a little bit, 3 = a moderate amount, 4 = quite a lot and 5 = an extreme amount.

The Parental Bonding Instrument (PBI)

The PBI measures adults' perceptions and recollections of parental or other primary caregiver behaviours and attitudes for the first sixteen years of life. The PBI was initially developed by Parker *et al.* (1979). The PBI assess two main factors: care and control. Care is defined as the level of parental empathy, warmth and affection or being cold and uncaring. Control is defined as the degree to which a parent is intrusive, infantilising and oppressive or promoting autonomy. A short version of the PBI was developed by Pederson (1994) consisting of ten

items for each parent respectively. This study used the short version of the PBI where 5 items were associated with care and 5 items were associated with control for each parent. Each item is measured on a 4 point scale where scores range from 0 – 3 providing a total score of 0 – 15 for each care and control factor. High scores represent a high degree of care and control. Participants rate each item as ‘strongly agree,’ ‘agree,’ ‘disagree,’ and ‘strongly disagree.’

The Regulation of Emotions Questionnaire (REQ)

The REQ was developed by Phillips and Power (2007) as a measure to assess emotion regulation strategies. The REQ is a 21 item scale which is divided into four subscales: Internal-dysfunctional, internal-functional, external-dysfunctional and external-functional. Participants were asked to rate in general how often they respond to their emotions on a 5 point scale measured as ‘never,’ ‘seldom,’ ‘often,’ ‘very often,’ and ‘always’. There are 5 items in the internal-dysfunctional, internal functional and external-dysfunctional subscales with scores ranging from 5 to 25. The external-functional scale consists of 6 items and scores range from 6 to 30. High scores in each subscale represent a greater use of each strategy.

Risk of Repetition Scale

The risk of repetition scale was developed by Buglass and Horton (1974) to measure the risk of repeating suicidal behaviour. The risk of repetition scale is made up of 6 items which indicate further risk of suicidal behaviour: antisocial personality, problem in use of alcohol, previous psychiatric inpatient care, previous psychiatric out-patient care, previous attempted suicide admission and

not living with a relative. A score of 1 is given for each relevant item and therefore the total score ranges from 0 to 6 where high score represent a greater risk of repeating suicidal behaviour.

Demographic Information

Demographic information was also obtained via semi-structured interview. Demographic information consisted of: date of birth, age, gender, marital status, domestic status, accommodation, postcode, occupation, family and personal history of psychiatric problems, previous admission to psychiatric hospital and when this occurred, personal history of alcohol and substance misuse, the number of times suicidal behaviour had been engaged in and when this last occurred and had previous suicidal behaviour resulted in hospital admission. Postcode data was used to calculate deprivation category scores.

Procedure

Ethical approval was gained from the local NHS health board committee on medical research ethics and the local research and development office.

Once Liaison Psychiatry had completed their psychosocial assessment and ethical consent to participate in the study had been obtained, the principal investigator carried out the data collection process. The principal investigator initially performed a semi-structured interview which involved gathering demographic information and introducing the self-report measures. Following this the 4 self-report questionnaires were completed.

Data Analysis

The Statistical Package for Social Sciences (SPSS) Version 17 for Windows was used for statistical analysis. Descriptive statistics were used to analyse demographic information. To answer the research question of this current study by analysing potential mediating variables, this study used the Baron and Kenny (1986) mediation procedure. This involved carrying out a sequence of simple and standard multiple regression analyses at each point of the potential models.

Statistical Power

The number of participants needed to achieve a statistically significant result was determined by examining other studies investigating mediating variables within a suicidal behaviour sample. The main study used for guidance on statistical power for this group was by Dale *et al.* (2010). This study investigated early maladaptive schemas as a mediating factor between parental bonding and suicidal behaviour. This study used a sample size of 60 to gain a medium effect size where α was set at 0.05. Further guidance was also sought from Clark-Cater (2010). Using multiple regression analysis to investigate the possible mediating role of childhood maltreatment and emotion regulation strategies between parental bonding and suicidal behaviour a sample size ranging from 60 – 80 participants would be needed to attain power at 0.8 where $\alpha = 0.05$.

Results

Descriptive data of the sample are presented in table 1 below.

Table 1. Demographic information for the suicidal behaviour sample (N = 60)

Gender	Mean Age	Marital Status	Domestic Status	Accommodation	Occupation
Female = 38 (63.3%)	33.6 Years, SD = 12.9	Single = 34 (56.7%)	Living alone = 34 (56.7%)	Council rent = 25 (41.7%)	Unemployed = 30 (50%)
Male = 22 (36.7%)	Range = 18-65 Years	With Partner = 11 (18.3%)	Living with children = 7 (11.7%)	Own home = 15 (25%)	Student = 12 (20%)
		Divorced = 7 (11.7%)	Living with parents = 6 (10%)	Private rent = 12 (20%)	Manual = 8 (13.3%)
		Separated = 4 (6.7%)	Living with friends = 6 (10%)	Hostel supported accommodation = 3 (5%)	Technical = 3 (5%)
		Married = 2 (3.3%)	Living with partner = 5 (8.3%)	Student accommodation = 5 (8.3%)	Professional = 7 (11.7%)
		Widowed = 2 (3.3%)	Living with partner and children = 2 (3.3%)		

Table 2 illustrates the economic status of the group sourced from deprivation category (DEPCAT) scores. DEPCAT 1 represents the most prosperous postcode area and DEPCAT 7 represents the most deprived postcode area (McLoone, 2004).

Table 2. Socio-economic status of the suicidal behaviour group (N = 56)

Deprivation Category	Frequency	Percentage
DEPCAT 1	1	1.7
DEPCAT 2	3	5.0
DEPCAT 3	10	16.7
DEPCAT 4	9	15.0
DEPCAT 5	8	13.3
DEPCAT 6	17	28.3
DEPCAT 7	8	13.3

Information regarding personal history of alcohol problems and substance misuse was also gathered. 58.3% of participants reported experiencing alcohol problems and 33.3% reported problems with substance misuse. The method of current suicidal behaviour that participants presented with was: 70% overdose with alcohol, 16.7% overdose without alcohol, 8.3% cutting wrists, 3.3% stabbing and 1.7% hanging. Data regarding previous suicidal behaviour was also collected. 65% of participants reported to have previously engaged in suicidal behaviour whilst the remaining 35% reported their current episode as their first time. All 65% of repeaters reported that previous suicidal behaviour had resulted in hospital admission and the frequency of this is reported in table 3. Previous attempts displayed a mean of 3.5, (SD = 4.4) with a range from 1 – 15.

Table 3: Number of people from suicidal behaviour sample with previous suicide attempts resulting in hospital admission (N = 39)

Previous suicidal behaviour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No of people	5	7	7	4	4	2	1	0	1	0	0	4	0	3	1

The length of time since the last suicidal behaviour was recorded and the responses were classified into six groups: Within the last week (2 participants); within the last month (7 participants); within the last six months (13 participants); within the last year (6 participants); within the last five years (8 participants) and more than five years ago (3 participants).

Participants were also asked about their psychiatric history. 53.3% of participants reported experiencing a family history of psychiatric problems. 83.3% disclosed that they had experienced personal history of psychiatric problems with 26.7% stating previous admission to a psychiatric hospital. Out of this latter group 5.0% reported last admission to a psychiatric hospital within the last six months, 6.7% within the last year, 6.7% within the last five years and 8.3% more than five years ago.

With regards to childhood trauma, Table 4 shows the prevalence of the childhood maltreatment variables up till the age of 18 years found within this suicidal behaviour sample and also by gender.

Table 4. Prevalence of childhood maltreatment variables within sample and by gender

	No. (%) of participants reporting:					
	Total no. (%)	Emotional Neglect	Emotional Abuse	Physical Abuse	Sexual Harassment	Sexual Abuse
All Participants	60 (100)	38 (63.3)	39 (65)	31 (51.7)	16 (26.7)	19 (31.7)
Male	22 (36.7)	15 (68.2)	14 (63.6)	14 (63.6)	5 (22.7)	7 (31.8)
Female	38 (63.3)	23 (60.5)	25 (65.8)	17 (44.7)	11 (28.9)	12 (31.6)

Pearson's Chi-square analyses showed no significant associations between the individual childhood maltreatment variables and gender.

Analysis of mediational effect:

The mediating role of childhood trauma and emotion regulation strategies between parental care and risk of repeating suicidal behaviour.

Baron and Kenny (1986) detail two phases that are essential to conducting mediation analysis. First, all the variables in the mediational model must show inter-correlations. Significant inter-correlations were found between parental care with childhood emotional abuse and the suicidal behaviour construct risk of

repetition. Further inter-correlations were found between parental care the emotion regulation strategy REQ-external functional and risk of repetition and also childhood physical abuse, the emotion regulation strategy REQ-internal functional and risk of repetition. Based on these inter-correlations 3 mediational models were analysed: One investigating parental care with emotional abuse and risk of repetition; one examining parental care with emotion regulation strategy REQ-external functional and risk of repetition; and one analysing physical abuse with emotion regulation strategy REQ-internal functional and risk of repetition.

The second phase required completing three simple regression analyses. Baron and Kenny (1986) state that a mediator variable is established when the following conditions are met: The first condition requires regressing the prospective mediator variable onto the predictor variable. Here the predictor variable must affect the mediator variable. The second condition involves the regression of the outcome variable on the predictor variable, where the predictor variable must affect the outcome variable. The third and final condition requires regressing the outcome variable on the predictor variable and the mediating variable concurrently. Baron and Kenny (1986) suggest that when the predictor variable ceases to have an effect on the outcome variable then a firm conclusion can be drawn for a single and dominant mediator.

Childhood emotional abuse, parental care and risk of repetition

Childhood emotional abuse was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on childhood emotional abuse $\beta = -0.352$, $p = 0.006$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = -0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and childhood emotional abuse concurrently. At this point Figure 1 shows that childhood emotional abuse maintained significance with a standardised beta of $\beta = 0.425$, $p = 0.001$, whereas the pathway between parental care and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = -0.113$. Therefore a mediating relationship was found.

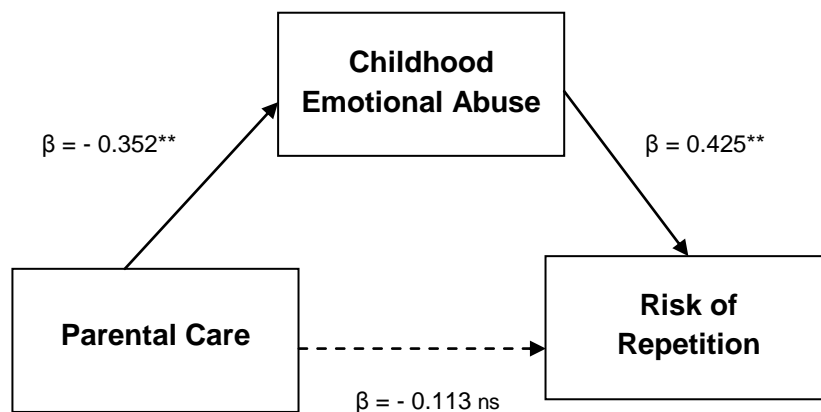


Figure 1. Standardised β coefficients of the pathways between parental care, childhood emotional abuse and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

Parental care, emotion regulation strategy REQ- external functional and risk of repetition.

REQ-external functional emotional regulation strategy was regressed onto parental care and the standardised beta coefficient showed that parental care had a significant affect on REQ-external functional $\beta = 0.405$, $p = 0.001$. Risk of repetition was then regressed onto parental care and standardised beta weights revealed that parental care had a significant affect on risk of repetition $\beta = - 0.262$, $p = 0.043$. The final phase involved the mediation process where risk of repetition was regressed onto parental care and REQ-external functional concurrently. At this node Figure 2 shows that REQ-external functional emotional regulation strategy maintained significance with a standardised beta of $\beta = -0.409$, $p = 0.002$, whereas the pathway between parental care and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = - 0.096$. Therefore a mediating relationship was found.

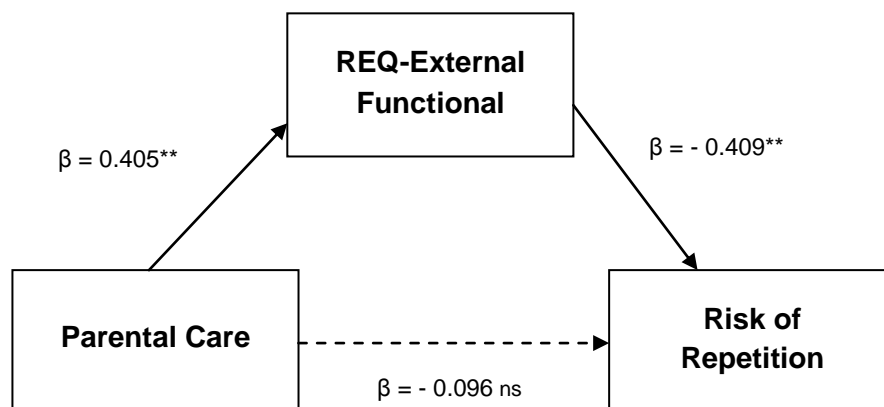


Figure 2. Standardised β coefficients of the pathways between parental care, emotion regulation strategy REQ-external functional and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

Childhood physical abuse, emotion regulation strategy (REQ-IF) and risk of repetition

REQ-internal functional emotional regulation strategy was regressed onto childhood physical abuse and the standardised beta coefficient showed that childhood physical abuse had a significant affect on REQ-internal functional $\beta = -0.320$, $p = 0.013$. Risk of repetition was then regressed onto childhood physical abuse and standardised beta weights revealed that childhood physical abuse had a significant affect on risk of repetition $\beta = -0.315$, $p = 0.014$. The final phase involved the mediation process where risk of repetition was regressed onto childhood physical abuse and REQ-internal functional concurrently. At this stage Figure 3 shows that REQ-internal functional emotional regulation strategy maintained significance with a standardised beta of $\beta = -0.418$, $p = 0.001$, whereas the pathway between childhood physical abuse and risk of repetition did not remain significant showing a standardised beta coefficient of $\beta = -0.181$. Therefore a mediating relationship was found.

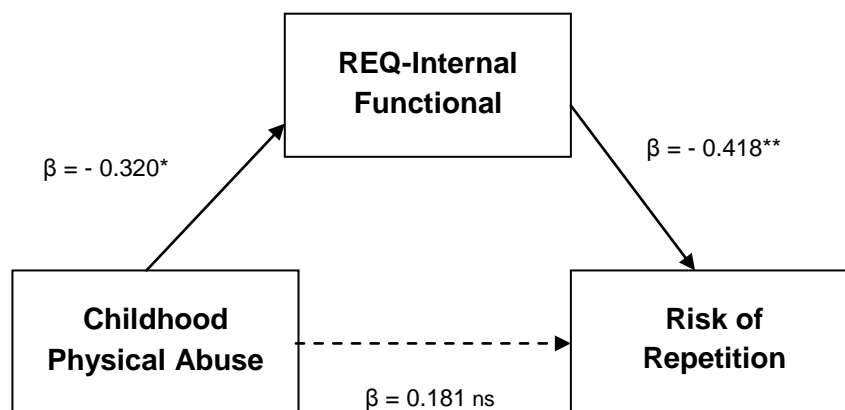


Figure 3. Standardised β coefficients of the pathways between parental care, emotion regulation strategy REQ-internal functional and risk of repetition * $p < 0.05$, ** $p < 0.01$, ns = not significant.

Discussion

Before discussing the outcomes of the mediation models it is important to note that due to the methodological and statistical limitations of this study the findings need to be considered with caution.

The current study found that childhood emotional abuse mediated the relationship between parental care and risk of repeating suicidal behaviour. This finding demonstrates the oblique influence of negative childhood experiences on suicidal behaviour in adulthood. This discovery is consistent with the literature suggesting that childhood abuse plays a direct and independent role to long-term psychosocial functioning in adulthood (Boney-McCoy & Finkelhor, 1998). However, these assertions have been specifically related to childhood sexual abuse and therefore the independent role of other forms of childhood maltreatment have not been as extensively researched and therefore known. Hence this preliminary result could provide a new and alternative slant to considering the contribution and process involved between other forms of childhood maltreatment and parental bonding to suicidal behaviour in adulthood. Therefore, this finding places an emphasis on the importance of considering the long-term impact of childhood emotional abuse on adult suicidal behaviour, particularly risk of repeating suicidal behaviour. This outcome also suggests that the role of childhood abuse in general could be reconsidered from a mere two way relationship and rather thought of as a direct mediating factor itself. Having said this, a study by Higgins *et al.* (2003) tested the mediating role of total childhood abuse (physical, sexual and psychological) and did not find this to be a significant

mediator between family environment and adult adjustment. Instead Higgins *et al.* (2003) found familial factors to play a mediating role between childhood abuse and adult long-term adjustment. However, the Higgins *et al.* (2003) study was based on a non-suicidal group. This is the first study to find emotional abuse as a significant mediating factor within the suicidal behaviour population. Therefore this finding suggests that childhood emotional abuse is an important aspect of and a risk factor for suicidal behaviour particularly risk of repeating suicidal behaviour. Furthermore this finding is also important considering the limited research investigating the long-term impact of emotional abuse and therefore this finding further enhances the literature. However, because this is a new finding amongst the suicidal behaviour literature, further research needs to be carried out in order to understand the long-term role of childhood emotional abuse within the suicidal behaviour population.

This study also found the REQ-External Functional emotion regulation strategy to be a significant mediator between parental care and risk of repeating suicidal behaviour. This finding demonstrates that parental care is a strong predictor of developing emotion regulation strategies and a lack of external functional emotion regulation strategies results in risk of repeating suicidal behaviour. In support of this finding Sim *et al.* (2009) found that maladaptive emotion regulation skills mediated the relationship between adolescents from an invalidating family environment (rejecting or dismissive) and deliberate self-harm. A study by Shipman *et al.*, (2005) found that children experiencing neglectful parenting (parental unavailability physical and emotional) displayed a lack of emotional

understanding; less functional emotion regulation strategies; low emotional self-awareness and an inability to cope with emotional distress. Other studies focusing on parental care such as Hildyard and Wolfe (2002) reported that physically and emotionally neglected infants compared to non-maltreated and abused children displayed difficulties in ‘...coping, personality development and emotion regulation’ (p.685). A study by Erickson (as cited in Hildyard & Wolfe, 2002) found that neglected children scored the lowest on self-esteem and were observed as the ‘...most unhappy group of children’ (p. 685). This study also found that neglected children exhibit behaviours such as ‘...tics, tantrums, stealing, soiling, frequent physical complaints, self punishing behaviours and clinginess’ (Hildyard & Wolfe, 2002, P.685). Therefore parental care and negative family environments directly shape children’s emotionality, emotional competence and emotional regulation skills (Morris *et al.*, 2007).

As previously outlined there is a large body of research demonstrating the long-term effects of poor attachment and parental bonding on adult psychosocial functioning. A review by Maughan and McCarthy (1997) highlights extensive research reporting the long-term effects and risk factors of poor parental care and abusive family environments on subsequent adult functioning such as depression, anxiety, eating disorders, physical health problems, alcohol problems and substance misuse and suicidal behaviour. As previously outlined these damaging behaviours could be considered as engaging in dysfunctional emotion regulation strategies to manage emotional distress. Therefore the finding of this significant mediating model possibly further highlights the importance of the impact parental

care can have on the development of functional or dysfunctional emotion regulation strategies and subsequent adult wellbeing. Furthermore, this finding adds to this body of research, particularly when considering a lack of external functional emotion regulation skills in relation to adult suicidal behaviour.

The study also found the REQ-Internal Functional emotion regulation strategy to be a significant mediator between childhood physical abuse and risk of repeating suicidal behaviour. This finding demonstrates that childhood physical abuse is a strong predictor of inhibiting the development of functional emotion regulation strategies and a lack of internal functional emotion regulation strategies results in a higher risk of repeating suicidal behaviour. In support of this finding Burns *et al.* (2010) found that emotion dysregulation partially mediated the relationship between childhood physical abuse and post traumatic stress. Furthermore, Cloitre *et al.* (2008) also found that dysfunctional emotion regulation played a mediating role between childhood abuse and post traumatic stress disorder. Paivio and McCulloch (2004) discovered that problems in emotion regulation mediated the relationship between childhood abuse and self-injury. Milligan and Andrews (2005) found that bodily shame partially mediated the relationship between child sexual abuse and self-harming behaviour. Muehlenkamp *et al.* (2010) found that adults who had experienced childhood abuse and engaged in self-harming behaviour also reported problems in regulating emotions. Therefore the findings of this study adds to the literature suggesting that experiences of childhood physical abuse result in a lack of internal functional emotion regulation strategies which subsequently results in the risk of repeating suicidal behaviour.

The two significant internal and external functional emotion regulation mediational models could be considered as distinct and novel from the other mediating models investigating emotion regulation. This is because no other study to date has investigated emotion regulation as a mediating factor within a suicidal behaviour sample. Therefore, this study provides preliminary evidence that a lack of internal and external functional emotion regulation strategies could be risk factors to people being at risk of repeating suicidal behaviour. Therefore difficulties in regulating emotions is an important factor in further understanding suicidal behaviour in adults, particularly with individuals with experiences of low parental care and childhood physical abuse. Having said this, the conceptualisation of emotion regulation and the long-term effects of childhood abuse are incredibly complex, particularly in relation to composite psychological problems such as suicidal behaviour. Therefore the findings of these significant mediation models only provide a small and relatively unsophisticated insight into what is a more multifarious human experience. Therefore further research using more complex mediation models such as structured equation modelling needs to take place to further understand the direct and indirect effects of low parental care, childhood emotional and physical abuse and internal and external functional emotion regulation strategies. Therefore the significant mediation effects found in this study need to be considered with caution as these findings may be more meaningful within a multiple mediator scenario.

The non-significant result between parental control and risk of repeating suicidal behaviour is not in line with other research which has shown that parental control is a factor in those engaging in suicidal behaviour (Parker, 1998). This non-

significant outcome could just be a reflection of this particular sample, where lack of care was the primary dimension. Indeed, previous research has suggested that low parental care is mainly associated with psychological dysfunction rather than overly controlling parental experiences (Deas *et al*, 2010). Therefore it could be that this particular group are experiencing more psychological dysfunction and therefore elevating the low parental care score.

Clinical Implications

The findings of this study show the importance of childhood emotional abuse and dysfunctional emotion regulation strategies in people engaging in suicidal behaviour. Furthermore, the study has shown that childhood abuse also plays an active role within the process leading to suicidal behaviour and should not be just considered as a historical and environmental variable. The findings of this study will further enhance clinical practice at both assessment and treatment for adults and early prevention work by highlighting the mediating role of dysfunctional emotion regulation between parental care and long-term psychosocial functioning. Also, by highlighting the particular role childhood physical abuse, emotion dysregulation and subsequent suicidal behaviour involving risk of repetition.

Study Limitations

Although the study draws attention to the mediating roles of childhood emotional abuse and emotion dysregulation, these are also early findings in this area and therefore need to be considered within the study's methodological and statistical limitations hence reducing generalisation of the results.

This was a cross-sectional study and therefore an understanding of definite causal factors relating to the long-term influence of childhood abuse, poor parental bonding and the ability/inability to regulate emotions on suicidal behaviour are limited. The retrospective and self-report nature of the study i.e. using self-report questionnaires to assess childhood abuse, parental bonding and emotion regulation may have prejudiced results through recall bias and autobiographical memory distortion. Therefore these investigated factors may benefit from further examination within a longitudinal context. Although this study aimed to reduce sampling bias by reporting a participation rate of 87%, comparisons between participants and non-participants was not measured. Therefore, those who chose not to participate or were excluded from the study may have answered the questions differently and so potentially changing the results. For example, participants who had absconded or were under police control. Therefore non-responder bias cannot be ruled out. The context in which the data was collected in i.e. participants presenting to accident and emergency following suicidal behaviour may have negatively biased self reports. This bias may have occurred through participants experiencing elevated levels of emotional or psychological distress and thus potentially under or over reporting their childhood experiences.

However, this study aimed to minimise this confounding factor by excluding participants exhibiting high levels of distress, checking with the participants if they were feeling upset and also allowing time for the participants to ask questions prior to and following data collection. The different forms of childhood abuse examined were not isolated or 'pure' experiences. There was overlap between the different forms of abuse which therefore may have been influencing each other. However, McGee (as cited in Higgins *et al*, 2003) suggests that 'pure' childhood abuse experiences rarely exist and therefore there should be a focus on investigating multiple types of abuse and how these influence and moderate each other when considering long-term adult functioning. This sample did not score highly on the suicidal intent scale and therefore these factors need to be re-investigated with people presenting with a higher degree of suicidal intent. Adult re-victimisation was not controlled for and may have potentially confounded the results. Therefore, the study cannot say for sure if the results found were purely related to childhood experiences and so only tentative conclusions can be drawn from the results. This was a within group design with no comparison or control group hence the findings of this study cannot be generalised to other populations as the results of this study may be specific to this sample. The relatively small sample size in addition to the methodological limitations discussed above further reduces the generalisability of these findings because the small sample of this study maybe less representative of the suicidal behaviour population. Ethnicity of the sample was not measured. However the majority of the sample were Caucasian and therefore further limiting the generalisability of the results. Statistically this study did not employ a complex structured equation model to test

multiple potential mediating variables. Therefore although single intervening factors such as childhood emotional abuse and low functional emotion regulation strategies were found to be significant, the findings were limited to this rather than conceptualising them in a larger more complex model. Therefore further generalisations of these findings are limited.

Future Research

Further research needs to be carried out involving childhood emotional abuse and dysfunctional emotion regulation strategies with other clinical and general populations to determine generalisability. Future research needs to control for methodological limitations found in this study such as controlling for re-victimisation or incorporate adult re-victimisation to see what influence this has on the ability to regulate emotions and psychosocial functioning. Overall, a more complex model, using more statistically robust mediational models needs to be considered within a developmental and social framework bringing together: childhood abuse, attachment, emotion regulation, cognitions, family environment, interpersonal functioning, as well as wider social aspects such as economic deprivation, social class, social impact of gender differences, race, ethnicity, religion and other wider social beliefs.⁷

⁷ See appendix 15 for journal author guidelines for systematic review (clinical psychology review and article (child abuse and neglect).

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Appendix One

SIGN Quality Assessment Tool



Methodology Checklist 4: Case-control studies

SIGN

Study identification (Include author, title, year of publication, journal title, pages)

Guideline topic:

Key Question No:

Checklist completed by:

SECTION 1: INTERNAL VALIDITY

In an well conducted case control study:

In this study the criterion is:

1.1	The study addresses an appropriate and clearly focused question	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
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SELECTION OF SUBJECTS

1.2	The cases and controls are taken from comparable populations	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.3	The same exclusion criteria are used for both cases and controls	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.4	What percentage of each group (cases and controls) participated in the study?		
1.5	Comparison is made between participants and non-participants to establish their similarities or differences.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.6	Cases are clearly defined and differentiated from controls	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.7	It is clearly established that controls are non-cases	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable

ASSESSMENT

1.8	Measures will have been taken to prevent knowledge of primary exposure influencing case ascertainment	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.9	Exposure status is measured in a standard, valid and reliable way	Well covered – standardised measures. Adequately addressed Poorly addressed	Not addressed Not reported Not applicable

CONFOUNDING

1.10	The main potential confounders are identified and taken into account in the design and analysis	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
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STATISTICAL ANALYSIS

1.11	Confidence intervals are provided	
SECTION 2: OVERALL ASSESSMENT OF THE STUDY		
2.1	How well was the study done to minimise the risk of bias or confounding? <i>Code ++, +, or –</i>	
2.2	Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the exposure being investigated?	
2.3	Are the results of this study directly applicable to the patient group targeted by this guideline?	
SECTION 3: DESCRIPTION OF THE STUDY (Note: The following information is required for evidence tables to facilitate cross-study comparisons. Please complete all sections for which information is available). PLEASE PRINT CLEARLY		
3.1	<i>Do we know who the study was funded by?</i>	<input type="checkbox"/> Academic Institution <input type="checkbox"/> Healthcare Industry <input type="checkbox"/> Government <input type="checkbox"/> NGO <input type="checkbox"/> Public funds <input type="checkbox"/> Other
3.2	<i>How many centres are patients recruited from?</i>	2 sites. Suicidal behaviour group = 1 hospital site. Non suicidal behaviour group = 1 walk in clinic for non-emergency medical problems.
3.3	<i>From which countries are patients selected? (Select all those involved. Note additional countries after "Other")</i>	<input type="checkbox"/> Scotland <input type="checkbox"/> UK <input type="checkbox"/> USA <input type="checkbox"/> Canada <input type="checkbox"/> Australia <input type="checkbox"/> New Zealand <input type="checkbox"/> France <input type="checkbox"/> Germany <input type="checkbox"/> Italy <input type="checkbox"/> Netherlands <input type="checkbox"/> Scandinavia <input type="checkbox"/> Spain <input type="checkbox"/> Other:
3.4	<i>What is the social setting (ie type of environment in which they live) of patients in the study?</i>	<input type="checkbox"/> Urban <input type="checkbox"/> Rural <input type="checkbox"/> Mixed
3.5	<i>What criteria are used to decide who should cases?</i>	
3.6	<i>What criteria are used to decide who should be controls?</i>	

3.7	<i>What exposure or risk factor is investigated in the study? (Include dosage where appropriate)</i>	
3.8	<i>How long were patients followed-up for?</i>	
3.9	<i>List the key characteristics of the patient population. Note if there are any significant differences between different arms of the trial.</i>	
3.10	<i>Record the basic data for each arm of the study. If there are more than four arms, note data for subsequent arms at the bottom of the page.</i>	
	Cases: Exposure: Sample size: No. analysed With outcome: Without outcome:	Cases: Exposure: Sample size: No. analysed With outcome: Without outcome:
3.11	Notes. Summarise the authors conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question. <i>{Much of this is likely to be contributed by GDG members}.</i>	

Appendix Two

SIGN Quality Assessment Tool Notes

Notes on the use of Methodology Checklist 4: Case-control studies

The studies covered by this checklist are designed to answer questions of the type “What are the factors that caused this event?”, and involve comparison of individuals with an outcome with other individuals from the same population who do not have the outcome. These studies start after the outcome of an event, and can be used to assess multiple causes of a single event. They are generally used to assess the causes of a new problem, but may also be useful for the evaluation of population based interventions such as screening.

Section 1 identifies the study, the reviewer, the guideline for which the paper is being considered as evidence, and the key question(s) it is expected to address. The reviewer is asked to consider a series of aspects of cohort study design and to make a judgement as to how well the current study meets this criterion. Each relates to an aspect of methodology that research has shown makes a significant difference to the conclusions of a study.

Case-control studies need to be very carefully designed, and the complexity of their design is often not appreciated by investigators, leading to many poor quality studies being conducted. The questions in this checklist are designed to identify the main features that should be present in a well designed study. There are few criteria that should, alone and unsupported, lead to rejection of a study. However, a study that fails to address or report on more than one or two of the questions addressed below should almost certainly be rejected.

For each question in this section you should use one of the following to indicate how well it has been addressed in the study:

- Well covered
- Adequately addressed
- Poorly addressed
- Not addressed (i.e. not mentioned, or indicates that this aspect of study design was ignored)
- Not reported (i.e. mentioned, but insufficient detail to allow assessment to be made)
- Not applicable.

1.1 The study addresses an appropriate and clearly focused question

Unless a clear and well defined question is specified, it will be difficult to assess how well the study has met its objectives or how relevant it is to the question you are trying to answer on the basis of its conclusions.

1.2 The cases and controls are taken from comparable populations.

Study participants may be selected from the target population (all individuals to which the results of the study could be applied), the source population (a defined subset of the target population from which participants are selected), or from a pool of eligible subjects (a clearly defined and counted group selected from the source population). **If the study does not include clear definitions of the source population it should be rejected.**

1.3 The same exclusion criteria are used for both cases and controls

All selection and exclusion criteria should be applied equally to cases and controls. Failure to do so may introduce a significant degree of bias into the results of the study.

1.4 What percentage of each group (cases and controls) participated in the study?

Differences between the eligible population and the participants are important, as they may influence the validity of the study. A participation rate can be calculated by dividing the number of study participants by the number of eligible subjects. It is more useful if calculated separately for cases and controls. If the participation rate is low, or there is a large difference between the two groups, the study results may well be invalid due to differences between participants and non-participants. In these circumstances, the study should be downgraded, and rejected if the differences are very large.

1.5 Comparison is made between participants and non-participants to establish their similarities or differences

Even if participation rates are comparable and acceptable, it is still possible that the participants selected to act as cases or controls may differ from other members of the source population in some significant way. A well conducted case-control study will look at samples of the non-participants among the source population to ensure that the participants are a truly representative sample.

1.6 Cases are clearly defined and differentiated from controls

The method of selection of cases is of critical importance to the validity of the study. Investigators have to be certain that cases are truly cases, but must balance this with the need to ensure that the cases admitted into the study are representative of the eligible population. **The issues involved in case selection are complex, and should ideally be evaluated by someone with a good understanding of the design of case-control studies. If the study does not comment on how cases were selected, it is probably safest to reject it as a source of evidence.**

1.7 It is clearly established that controls are non-cases

Just as it is important to be sure that cases are true cases, it is important to be sure that controls do not have the outcome under investigation. Control subjects should be chosen so that information on exposure status can be obtained or assessed in a similar way to that used for the selection of cases. If the methods of control selection are not described, the study should be rejected. **If different methods of selection are used for cases and controls the study should be evaluated by someone with a good understanding of the design of case-control studies.**

1.8 Measures will have been taken to prevent knowledge of primary exposure influencing case ascertainment

If there is a possibility that case ascertainment can be influenced by knowledge of exposure status, assessment of any association is likely to be biased. A well conducted study should take this into account in the design of the study.

1.9 Exposure status is measured in a standard, valid and reliable way

The primary outcome measures used should be clearly stated in the study. **If the outcome measures are not stated, or the study bases its main conclusions on secondary outcomes, the study should be rejected.**

Where outcome measures require any degree of subjectivity, some evidence should be provided that the measures used are reliable and have been validated prior to their use in the study.

1.10 The main potential confounders are identified and taken into account in the design and analysis

Confounding is the distortion of a link between exposure and outcome by another factor that is associated with both exposure and outcome. The possible presence of confounding factors is one of the principal reasons why observational studies are not more highly rated as a source of evidence. The report of the study should indicate which potential confounders have been considered, and how they have been assessed or allowed for in the analysis. Clinical judgement should be applied to consider whether all likely confounders have been considered. If the measures used to address confounding are considered inadequate, the study should be downgraded or rejected, depending on how serious the risk of confounding is considered to be. **A study that does not address the possibility of confounding should be rejected.**

1.11 Confidence intervals are provided

Confidence limits are the preferred method for indicating the precision of statistical results, and can be used to differentiate between an inconclusive study and a study that shows no effect. Studies that report a single value with no assessment of precision should be treated with extreme caution.

Section 2 relates to the overall assessment of the paper. It starts by rating the methodological quality of the study, based on your responses in Section 1 and using the following coding system:

++	All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions of the study or review are thought <i>very unlikely</i> to alter.
+	Some of the criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are thought <i>unlikely</i> to alter the conclusions.
-	Few or no criteria fulfilled The conclusions of the study are thought <i>likely or very likely</i> to alter.

The code allocated here, coupled with the study type, will decide the **level of evidence** that this study provides.

The aim of the other questions in this section is to summarise your view of the quality of this study and its applicability to the patient group targeted by the guideline you are working on.

Section 3 asks you to summarise key points about the study that will be added to an evidence table at the next stage of the process. **It is important that you complete this section as fully as possible, and include actual data from the study wherever relevant.**

Appendix Three

Letters Confirming Ethical Approval

Appendix Four

Traumatic Experiences Checklist

Traumatic Experiences Checklist

People may experience a variety of traumatic experiences during their life. We would like to know three things:

1. If you have experienced any of the following 29 events.
 2. How old you were when they happened.
 3. How much of an impact these experiences had on you.
- A) In the **first column** (i.e. Did this happen to you?) indicate whether you had each of the 29 experiences by circling **YES** or **NO**.
- B) For each experience where you circled YES, list **in the second column** (i.e. Age) your age when it happened.
- If it happened more than once, list **ALL** of the ages when this happened to you
- If it happened for years (e.g., age 7-12), list the age range (i.e., age 7-12).
- C) In the **final column** (i.e., How much impact did this have on you?), indicate the **IMPACT** (by circling the appropriate number) **1, 2, 3, 4, or 5**.

1 = None

2 = A little bit

3 = A moderate amount

4 = Quite a bit

5 = An extreme amount

Example:	Did this happen to you?	Age	How much impact did this have on you?				
You were teased	No / Yes	_____	1	2	3	4	5

	Did this happen to you?	Age	How much impact did this have on you?
			1 = None 2 = A little bit 3 = A moderate amount 4 = Quite a lot 5 = An extreme amount
1. Having to look after your parents and/or brothers and sisters when you were a child?	No / Yes	_____	1 2 3 4 5
2. Family problems (e.g., parent with alcohol or psychiatric problems, Poverty)?	No / Yes	_____	1 2 3 4 5
3. Loss of a family member (brother, sister, parents) when you were a CHILD?	No / Yes	_____	1 2 3 4 5
4. Loss of a family member (child or partner) when you were an ADULT?	No / Yes	_____	1 2 3 4 5
5. Serious bodily injury (e.g. loss of a limb, mutilation, burns)?	No / Yes	_____	1 2 3 4 5
6. Threat to life from illness, an operation, or an accident?	No / Yes	_____	1 2 3 4 5
7. Divorce of your parents?	No / Yes	_____	1 2 3 4 5
8. Your own divorce?	No / Yes	_____	1 2 3 4 5
9. Threat to life from another person (e.g. during a crime)?	No / Yes	_____	1 2 3 4 5

10. Intense pain (e.g. from an injury or surgery)?	No / Yes	_____	1 2 3 4 5
11. War-time experiences (e.g. imprisonment, loss of relatives, deprivation Injury)?	No / Yes	_____	1 2 3 4 5
12. Second generation war-victim (war-time experiences of parents or close relatives)?	No / Yes	_____	1 2 3 4 5
13. Witnessing others undergo trauma?	No / Yes	_____	1 2 3 4 5
14. Emotional neglect (e.g. being left alone, insufficient affection) by your parents, brothers or sisters?	No / Yes	_____	1 2 3 4 5
15. Emotional neglect by more distant members of your family (e.g. uncles, aunts, nephews, nieces, grandparents)?	No / Yes	_____	1 2 3 4 5
16. Emotional neglect by non family members (e.g. neighbours, friends, step-parents, teachers)?	No / Yes	_____	1 2 3 4 5
17. Emotional abuse (e.g. being belittled, teased, called names, threatened verbally, or unjustly punished) by your parents, brothers or sisters?	No / Yes	_____	1 2 3 4 5

- | | | | |
|---|----------|-------|-----------|
| 18. Emotional abuse by more distant members of your family? | No / Yes | _____ | 1 2 3 4 5 |
| 19. Emotional abuse by non family members? | No / Yes | _____ | 1 2 3 4 5 |
| 20. Physical abuse (e.g. being hit, tortured, or wounded) by your parents, brothers, or sisters? | No / Yes | _____ | 1 2 3 4 5 |
| 21. Physical abuse by more distant members of your family? | No / Yes | _____ | 1 2 3 4 5 |
| 22. Physical abuse by non-family members? | No / Yes | _____ | 1 2 3 4 5 |
| 23. Bizarre punishment if applicable, please describe: | No / Yes | _____ | 1 2 3 4 5 |
| _____ | | | |
| _____ | | | |
| _____ | | | |
| 24. Sexual harassment (acts of a sexual nature that DO NOT involve physical contact) by your parents, brothers, or sisters? | No / Yes | _____ | 1 2 3 4 5 |

- | | | | |
|--|----------|-------|-----------|
| 25. Sexual harassment by more distant members of your family? | No / Yes | _____ | 1 2 3 4 5 |
| 26. Sexual harassment by non-family members? | No / Yes | _____ | 1 2 3 4 5 |
| 27. Sexual abuse (unwanted sexual acts involving physical contact) by
your parents, brothers, or sisters? | No / Yes | _____ | 1 2 3 4 5 |
| 28. Sexual abuse by more distant members of your family? | No / Yes | _____ | 1 2 3 4 5 |
| 29. Sexual abuse by non-family members? | No / Yes | _____ | 1 2 3 4 5 |

Thank you for taking the time to fill in this questionnaire.

Appendix Five

Parental Bonding Instrument – Short Form

THE PARENTAL BONDING INSTRUMENT (PBI) - MOTHER

For each item, please underline the alternative that best describes how you remember your mother* in the first 16 years of your life.

*Or the individual who you regarded in that role (e.g., grandmother, aunt, step-mother, etc.).

She did not talk with me very much

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She was affectionate to me

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She appeared to understand my problems and worries

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She did not help me as much as I needed

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She did not understand what I needed and wanted

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She liked me to make my own decisions

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She let me decide things for myself

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She tried to control everything I did

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She tended to baby me

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

She was overprotective

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

THE PARENTAL BONDING INSTRUMENT (PBI) - FATHER

For each item, please underline the alternative that best describes how you remember your father* in the first 16 years of your life.

*Or the individual who you regarded in that role (e.g., grandfather, uncle, step-father, etc.).

He did not talk with me very much

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He was affectionate to me

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He appeared to understand my problems and worries

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He did not help me as much as I needed

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He did not understand what I needed and wanted

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He liked me to make my own decisions

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He let me decide things for myself

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He tried to control everything I did

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He tended to baby me

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

He was overprotective

Strongly agree	Agree	Disagree	Strongly disagree
----------------	-------	----------	-------------------

Appendix Six

The Regulation of Emotions Questionnaire

Regulation of Emotion Questionnaire 2

We all experience lots of different feelings or emotions. For example, different things in our lives make us feel happy, sad, angry and so on...

The following questions ask you to think about **how often** you do certain things **in response to your emotions**. You do not have to think about specific emotions but just how often you **generally** do the things listed below.

Please tick the box corresponding to the answer that fits best. We all respond to our emotions in different ways so there are no right or wrong answers.

In GENERAL how do you respond to your emotions?	Never	Seldom	Often	Very Often	Always
1. I talk to someone about how I feel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I take my feelings out on others verbally (e.g. shouting, arguing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I seek physical contact from friends or family (e.g. a hug, hold hands)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I review (rethink) my thoughts or beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I harm or punish myself in some way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I do something energetic (e.g. play sport, go for a walk)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I dwell on my thoughts and feelings (e.g. It goes round and round in my head and I can't stop it)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. I ask others for advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I review (rethink) my goals or plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I take my feelings out on others physically (e.g. fighting, lashing out)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I put the situation into perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I concentrate on a pleasant activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I try to make others feel bad (e.g. being rude, ignoring them)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I think about people better off and make myself feel worse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I keep the feeling locked up inside	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I plan what I could do better next time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I bully other people (e.g. saying nasty things to them, hitting them)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I take my feelings out on objects around me (e.g. deliberately causing damage to my house, school or outdoor things)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I telephone friends or family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for your help.

The Revised 21-Item Measure: Scales, Items & Strategies

- 1) Internal-Dysfunctional:
 - ‘I harm or punish myself in some way’ (*self-harm*)
 - ‘I dwell on my thoughts and feelings (e.g. it goes round and round in my head and I can’t stop it)’ (*rumination*)
 - ‘I think about people better off than myself and make myself feel worse’ (*negative social comparison*)
 - ‘I keep the feeling locked up inside’ (*repression*)
 - ‘Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)’ (*de-realisation*)
- 2) Internal-Functional:
 - ‘I review (re-think) my thoughts or beliefs’ (*positive re-appraisal*)
 - ‘I review (re-think) my goals or plans’ (*modification of goals*)
 - ‘I plan what I could do better next time’ (*planning*)
 - ‘I put the situation into perspective’ (*perspective*)
 - ‘I concentrate on a pleasant activity’ (*concentration*)
- 3) External-Dysfunctional:
 - ‘I bully other people (e.g. saying nasty things to them, hitting them)’ (*bullying*)
 - ‘I take my feelings out on other people verbally (e.g. shouting, arguing)’ (*verbal assault*)
 - ‘I take my feelings out on other people physically (e.g. fighting, lashing out)’ (*physical assault*)
 - ‘I try to make others feel bad (e.g. being rude, ignoring them)’ (*making others feel bad*)
 - ‘I take my feelings out on objects around me (e.g. deliberately causing damage to my house, school or outdoor things)’ (*lashing out at objects*)
- 4) External-Functional:
 - ‘I talk to someone about how I feel’ (*expression of feelings*)
 - ‘I ask others for advice’ (*advice seeking*)
 - ‘I seek physical contact from friends or family (e.g. a hug, hold hands)’ (*physical contact*)
 - ‘I do something energetic (e.g. play sport, go for a walk)’ (*exercise*)
 - I telephone friends or family (*new item 1*)
 - I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people) (*new item 2*)

Appendix Seven

The Emotion Regulation Questionnaire

Emotion Regulation Questionnaire (ERQ)
Gross & John
9/03

The Emotion Regulation Questionnaire is designed to assess individual differences in the habitual use of two emotion regulation strategies: cognitive reappraisal and expressive suppression.

Citation

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. Journal of Personality and Social Psychology, 85, 348-362.

Instructions and Items

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1-----2-----3-----4-----5-----6-----7		
strongly disagree	neutral	strongly agree

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____ When I am feeling *positive* emotions, I am careful not to express them.
5. ____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. ____ I control my emotions by *not expressing them*.
7. ____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
8. ____ I control my emotions by *changing the way I think* about the situation I'm in.
9. ____ When I am feeling *negative* emotions, I make sure not to express them.
10. ____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Note

Do not change item order, as items 1 and 3 at the beginning of the questionnaire define the terms "positive emotion" and "negative emotion".

Scoring (no reversals)

Reappraisal Items: 1, 3, 5, 7, 8, 10; Suppression Items: 2, 4, 6, 9.

Appendix 8

The Pierce Suicide Intent Scale

Pierce Suicide Intent Scale – Clinician Rated

Pierce, D.W. (1977) British Journal of Psychiatry, 130, 377-385

Please indicate best response based on recent suicide behaviour

Patients Initials: _____

Circumstances Score

- | | | | |
|---|----------------------------|---|--|
| 1 | Isolation | 0 | Someone present |
| | | 1 | Someone nearby or on telephone |
| | | 2 | No-one nearby |
| 2 | Timing | 0 | Timed so intervention probable |
| | | 1 | Intervention unlikely |
| | | 2 | Intervention highly unlikely |
| 3 | Precautions against rescue | 0 | None |
| | | 1 | Passive (e.g. alone in room, door unlocked) |
| | | 2 | Active precautions |
| 4 | Acting to gain help | 0 | Notifies friend/helper of attempt |
| | | 1 | Contacts friend/helper, doesn't tell |
| | | 2 | No contact with friend/helper |
| 5 | Final acts in anticipation | 0 | None |
| | | 1 | Partial preparation |
| | | 2 | Definite plans (e.g. will, insurance, gifts) |
| 6 | Suicide note | 0 | None |
| | | 1 | Note torn up |
| | | 2 | Presence of note |

Medical Risk Score

- | | | | |
|---|---------------------------------|---|-------------------------|
| 7 | Predictable outcome | 0 | Survival certain |
| | | 1 | Death unlikely |
| | | 2 | Death likely or certain |
| 8 | Death without medical treatment | 0 | No |
| | | 1 | Uncertain |
| | | 2 | Yes |

Pierce Suicide Intent Scale - Self-report

Please underline response which best answers statement relating to your suicidal behavior.

Initials_____

- | | | | |
|----|-----------------|---|---------------------------------|
| 9 | Lethality | 0 | Thought would not kill |
| | | 1 | Unsure if lethal action |
| | | 2 | Believed would kill |
| 10 | Stated intent | 0 | Did not want to die |
| | | 1 | Unsure |
| | | 2 | Wanted to die |
| 11 | Premeditation | 0 | Impulsive |
| | | 1 | Considered for less than 1 hour |
| | | 2 | Considered for less than 1 day |
| | | 3 | Considered for more than 1 day |
| 12 | Reaction to act | 0 | Glad recovered |
| | | 1 | Uncertain |
| | | 2 | Sorry unsuccessful |

Appendix Nine

The Risk of Repetition Scale

Risk of Repetition Scale – Clinician Rated

Please tick if any of the following are indicated

- | | |
|--|--------------------------|
| 1. Antisocial personality | <input type="checkbox"/> |
| 2. Problem in use of alcohol (excessive drinking or alcohol addiction) | <input type="checkbox"/> |
| 3. Previous psychiatric inpatient care | <input type="checkbox"/> |
| 4. Previous psychiatric outpatient care | <input type="checkbox"/> |
| 5. Previous parasuicide admission | <input type="checkbox"/> |
| 6. Not living with a relative | <input type="checkbox"/> |

Buglass and Horton (1974). A scale for predicting subsequent suicidal behaviour. *British Journal of Psychiatry*, 124, 573-578.

Appendix Ten

The Beck Depression Inventory – II

**Due to copyright issues
this measure could not be
included**

Appendix Eleven

The Beck Anxiety Inventory

**Due to copyright issues
this measure could not be
included**

Appendix Twelve

Participant Information Sheet



Tayside Participant Information Sheet

The role of parental bonding, childhood experiences and emotions in suicidal behaviour

My name is Margi Amin and I am completing my final year of Clinical Psychology post-graduate training (D.Clin Psych) at the University of Edinburgh. I am required to undertake a project as part of my course and I would like to invite you to take part in this research project. However, before you decide to do so, I need to be sure that you firstly understand why I am doing it and secondly what it would involve if you agreed. I am therefore providing you with the following information. Please read it carefully and be sure to ask any questions you might have. I will do my best to explain the project and provide you with any further information you may ask, for now or later.

Background to the study:

This project is a joint project between the University of Edinburgh and NHS Tayside. We are looking at some of the factors which may be important in mental health. In particular, your views of the parenting you received as a child will be examined along with any negative childhood experiences and how this affected your emotions. You have been chosen as a possible participant in this research because looking at your experiences will help us better understand those in distress and help detect difficulties early on.

What does the study entail?

The study would involve you meeting with me, Margi Amin, the researcher, for an interview in which you will be asked to complete seven questionnaires and to answer a few questions about yourself. The questionnaires include two symptom checklists related to any psychological difficulties you may have at present; a questionnaire looking at your experiences of your relationship with your parents; one questionnaire asking about the presence and/or absence of any negative childhood experiences such as family problems; two questionnaires asking about your emotions for example, how you deal with your emotions and how you think about your emotions. A final questionnaire will look at your recent suicidal behaviour and this is completed in part by yourself and in part by the Liaison Psychiatric Nurse. The questionnaires are all

multiple choice. You do not have to put your name on the questionnaires only your initials. You can meet with me to complete the questionnaires in the privacy of your own room.

Do I have to take part?

It is up to you whether or not you take part. If you do so you will be given this information sheet to keep and you will be asked to sign a consent form. Only once you have read the information sheet and if you consent to participating will you meet with me. You are free to withdraw at any time and without giving a reason. A decision to withdraw at anytime or a decision to take part will not affect the standard of care you receive. This study is entirely separate from any contact you may be having with the NHS.

What are the discomforts or risks?

Some questions in the questionnaires may identify areas of difficulties and/or feelings that you had not fully considered before. If this happens and you are having difficulty coping with them please let me know or feel free to contact a member of staff on duty to provide advice and support. We can discuss future care provision where necessary.

What will happen to the information you collect about me?

If you are willing to take part in the study all the information about you and the responses that you give on the questionnaires will be confidential. No personal information will be used in the write up of the study. The responses you give to the questionnaires will be collected with other participants' responses and used to assess the role of parental bonding, childhood experiences and emotions in suicidal behaviour. If you decide to withdraw from the study all identifiable data will also be withdrawn from the study, however, non-identifiable data will be retained. All data will be stored on a password protected computer with no personal identifiable information. Access to the questionnaires will only be granted to the chief investigator, Margi Amin and supervisor, Professor Kevin Power.

Who has reviewed the study?

The Tayside Committee on Medical Research and Ethics, which has responsibility for scrutinising all proposals for medical research on humans in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. It is a requirement that your records in this research be made available for scrutiny by monitors from the University of Dundee and NHS Fife whose role is to check that research is properly conducted and the interests of those taking part are adequately protected.

What are your rights?

Participation in the study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time without having to give a reason. Your decision whether or not to participate in the study will have no influence on any current or future psychological or medical care you receive. It will also have no influence on your relationship with any healthcare/medical staff you are involved with.

What are your rights continued:

If you are willing to take part in this study please complete the consent form on the next page. This consent form will be kept separately from any information about you and the questionnaires you complete to protect your confidentiality. If you wish a copy of the overall results from the study, you can get this on request from myself at the number below. The study will be completed by August 2011.

If you have any difficulties or further questions please contact me or Professor Kevin Power on the following numbers:

Margi Amin: 01382 346 553

Professor Kevin Power: 01382 306 150 What happens if I am injured or have a complaint as a result of taking part in this study?

If you believe that you have been harmed in any way by taking part in this research the normal NHS complaints mechanism would still be available to you. To register a complaint against the NHS in Tayside or to receive more information about this you should contact:

Complaints and Claims Manager
Complaints and Advice Team
Level 7
Ninewells Hospital
Dundee
DD1 9SY

or

Freephone: 0800 027 5507

Email: complaints.tayside@nhs.net

This study is sponsored by the University of Edinburgh who have taken out insurance cover for this purpose. Therefore, you may receive compensation in the event you are harmed by something unforeseen i.e. when there is no negligence on the part of those conducting the study. This will depend upon review of the circumstances that led to harm or injury and the likelihood it was linked to your participation in the study. Such complaints should initially be taken to the chief investigator who is in charge of the study locally.

Thank you for taking the time to read and consider the above information. If you are willing to take part in the study, please take the time to carefully read and complete the consent form to indicate your consent to participate.

Appendix Thirteen

Participant Consent Form



CONSENT FORM

The mediating role of parental bonding between childhood maltreatment and emotion regulation in suicidal behaviour

Name of Researcher:

Please initial box

Have you read and understood the Participant Information Sheet?

☐

Have you been given an opportunity to ask questions and further discuss this study?

☐

Have you received satisfactory answers to all of your questions?

☐

Have you now received enough information about this study?

☐

Do you understand that your participation is entirely voluntary?

☐

Do you understand that you are free to withdraw from this study:

At any time?

☐

Without having to give a reason for withdrawing?

☐

Without this affecting your present or future medical care?

☐

Do you agree to take part in this study?

☐

Participant's signature

Date

Name of person taking consent

Date.....

THANK YOU for agreeing to take part in this research

Appendix Fourteen

Picture Chart

Regulation of Emotion Questionnaire

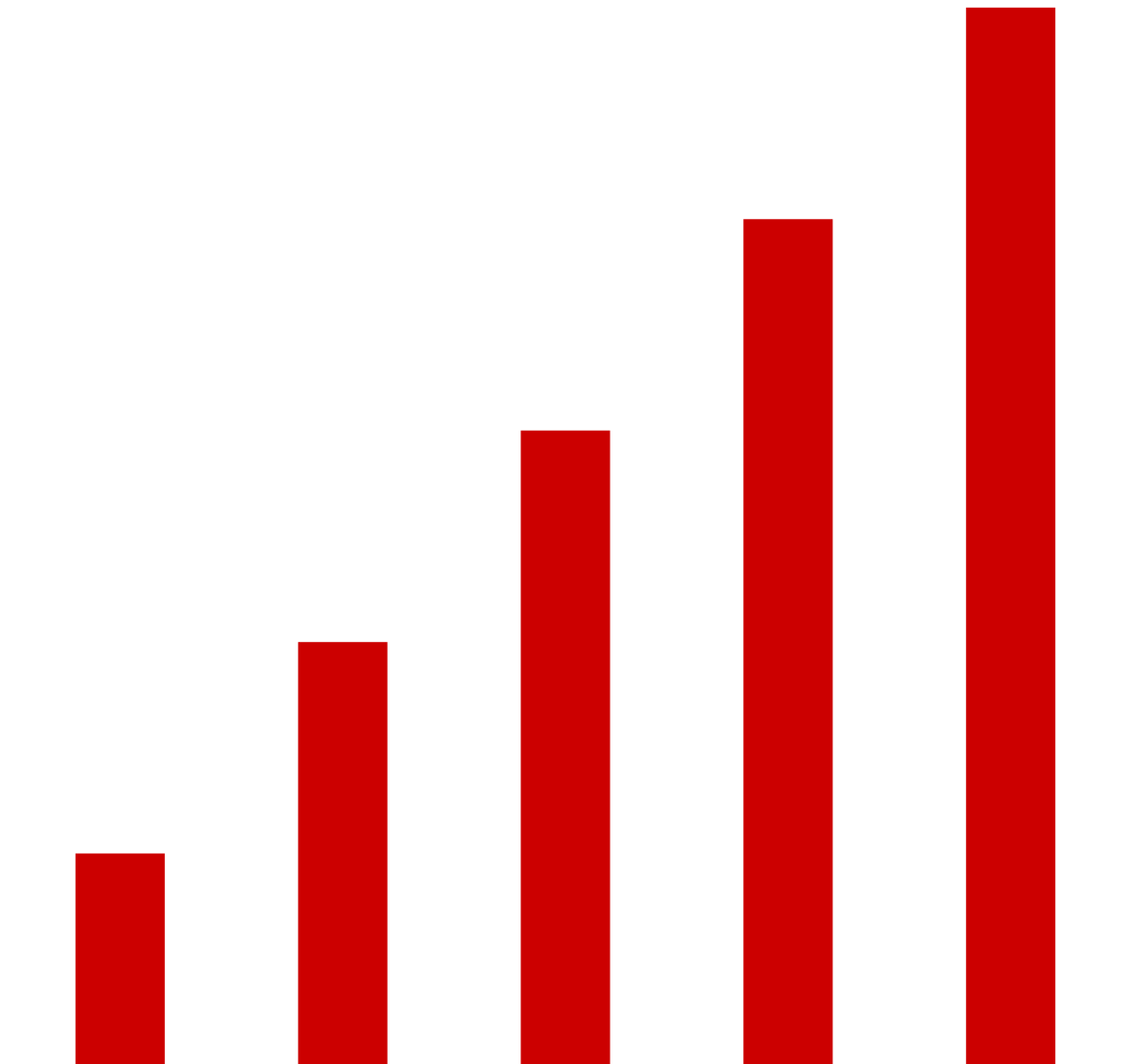
Never

Seldom

Often

Very Often

Always



Appendix Fifteen

Author Guidelines

Journal of Child Abuse and Neglect



Introduction

Child Abuse and Neglect The International Journal provides an international, multidisciplinary forum on all aspects of child abuse and neglect, with special emphasis on prevention and treatment; the scope extends further to all those aspects of life which either favor or hinder child development. While contributions will primarily be from the fields of psychology, psychiatry, social work, medicine, nursing, law enforcement, legislature, education, and anthropology, the Journal encourages the concerned lay individual and child-oriented advocate organizations to contribute.

Types of contributions

1. **Original, Theoretical, and Empirical Contributions (16-20 pages of text):** Include a clear introductory statement of purpose; historical review when desirable; description of method and scope of observations; full presentation of the results; brief comment/discussion on the significance of the findings and any correlation with others in the literature; section on speculation and relevance or implications; summary in brief which may include discussion. Abstracts and references are required.
2. **Brief Communications:** Shorter articles of 5-7 pages (abstracts and/or references optional).
3. **Articles on Clinical Practice:** Case studies (but not single cases), commentaries, process and program descriptions, clinical audit and outcome studies, original clinical practice ideas for debate and argument.
4. **Invited Reviews:** Plans for proposed reviews are invited in draft outline in the first instance. The editors will commission reviews on specific topics. Reviews submitted without invitation or prior approval will be returned.
5. **Letters to the Editor:** Letters and responses pertaining to articles published in *Child Abuse and Neglect* or on issues relevant to the field, brief and to the point, should be prepared in the same style as other manuscripts.
6. **Announcements/Notices:** Events of national or international multidisciplinary interests are subject to editorial approval and must be submitted at least 8 months before they are to appear.

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Preparation

Use of wordprocessing software

It is important that the file be saved in the native format of the wordprocessor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the wordprocessor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier: <http://www.elsevier.com/guidepublication>). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on

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To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your wordprocessor.

Length and Style of Manuscripts

Full-length manuscripts should not exceed 35 pages total (including cover page, abstract, text, references, tables, and figures), with margins of at least 1 inch on all sides and a standard font (e.g., Times New Roman) of 12 points (no smaller). The entire paper (text, references, tables, etc.) must be double spaced.

Instructions on preparing tables, figures, references, metrics, and abstracts appear in the [Publication Manual of the American Psychological Association](#) (6th edition).

Article structure

Subdivision

Divide your article into clearly defined sections. Three levels of headings are permitted. Level one and level two headings should appear on its own separate line; level three headings should include punctuation and run in with the first line of the paragraph.

Introduction

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

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Abstract

A concise and factual structured abstract is required which is not to exceed 350 words in length. The abstract should include subheadings of Objectives, Methods, Results, Conclusions and state briefly the

purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Footnotes

The use of footnotes in the text is not permitted. Footnoted material must be incorporated into the text.

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